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SOME CRITERIA FOR EVALUATING STATE AND LOCAL AIR POLLUTION CONTROL LAWS†

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As part of a congressional plan to implement and enforce national ambient air standards, the Clean Air Amendments of 1970 required that every state in the Union enact or amend air pollution control legislation and regulations by January 31, 1972.¹ To guide the states in preparing their implementation plans, the Environmental Protection Agency (EPA) published, in its Proposed Regulations for Preparation, Adoption and Submittal of Implementation Plans,² model air pollution control regulations as "examples of the administrative provisions and pollutant emission limitations a state may need for an approval implementation plan."³ For the most part, these regulations were modeled on existing state and local legislation and regulations, although on the whole these existing laws—with a few exceptions—were and have been unsuccessful in controlling the emission of pollution or in improving air quality to a significant extent.⁴ Environmentalists and other critics have suggested many reasons for the general failure of pollution control laws, including the limited coverage and laxity of emission standards, the weakness of sanctions, the failure of administrative agencies to enforce existing laws, and the failure to pursue fully tax mechanisms as a means of control; however, these various hypotheses remain untested by controlled experiments. In any case, the EPA apparently assumed that nationwide implementation by the states of the stricter nationwide emission standards of the 1970 Amendments, enforced by traditional methods of inspection and licensing, would succeed—even though many individual states had

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¹ Clean Air Amendments of 1970, 42 U.S.C. §§ 1857c-5(a)(1), (2), -5(c), (f) (1970), setting forth a timetable for submission and approval of plans and attainment of air quality standards. The deadline for submission was January 31, 1972. This article does not distinguish between legislation and regulations enacted by an administrative agency. Some jurisdictions, such as New York City, have enacted their air pollution control codes as legislation, while others adopted similar codes as administrative regulations.

² 36 Fed. Reg. 6680 (1971).

³ *Id.* at 6687.

⁴ Examples of such generally unsuccessful legislation, promulgated to satisfy the requirements of the Clean Air Amendments of 1970 but based on prior legislation, will be pointed out throughout this article. The limited success of prior air pollution control laws in the New York-New Jersey metropolitan area will be emphasized.

failed to achieve significant improvement when they had used laws and regulations similar to those suggested in the model regulations.⁵

After more than four hundred interested parties submitted comments concerning the proposed regulations, the EPA "recast" the model air pollution control regulations "as a series of statements reflecting emission limitations attainable through the application of reasonably available control technology."⁶ Thus, instead of being given a series of concrete legislative provisions, the states received a series of emission standards without a specific regulatory framework for achieving the standards.⁷ In lieu of concrete regulatory provisions, the states were encouraged to consider "the socio-economic impact and the relative costs and benefits of the various emission control strategies" and emission "charges or taxes or other economic incentive schemes."⁸ It was hoped that the states would devise ingenious and successful new methods for preventing and controlling air pollution. However, most of those states with weak laws and regulations tended to do nothing more than issue traditional regulations following the federal guidelines as set forth in the proposed model regulations, and those states which already had extensive, though traditional, regulatory codes adhered to those regulatory schemes.⁹

Paying lip service to broad and noble goals of environmental protection in general and of clean air in particular has become, like kissing babies, a perfunctory gesture in the repertoire of politicians. Sincere environmentalists hoping to halt the trend of ecological contamination encounter an abundance of cliché-ridden generalities in searching for

⁵ Should a state fail to enforce its plan, the EPA may enforce it if "the Administrator finds that violations of an applicable implementation plan are so widespread that such violations appear to result from a failure of the State in which the plan applies to enforce the plan effectively" Thirty days' notice to the State and public notice of the Administrator's finding must be made before the Administrator may undertake enforcement. 42 U.S.C. § 1857c-8(a)(2) (1970). Whether enforced by the state, municipality, or the federal government, the regulatory scheme for obtaining compliance remains the same.

⁶ 36 Fed. Reg. 22406 (1971).

⁷ *Id.*

⁸ *Id.* For criticism of EPA inclusion of economic factors in the guidelines despite the judgment of Congress not to make economic factors relevant to the development of health-related standards under § 1857c-5 of the Clean Air Amendments, note 1 *supra*, and the adverse effect of such inclusion on Pennsylvania's and Montana's sulfur dioxide standards, see *Hearings on Implementation of the Clean Air Amendments of 1970 Before the Subcomm. on Air and Water Pollution of the Senate Pub. Works Comm.*, 92d Cong. 1st Sess., ser. 92-H31, pt. 1, at 368-99 (1972) (testimony of David W. Calfee, Assoc., Pub. Interest Research Group, and Robert J. Rauch, economist, appearing on behalf of the Pub. Interest Research Group).

⁹ Interview with Kenneth L. Johnson, Acting Director, Division of Air and Water Programs, EPA, Region II, February 7, 1972. Mr. Johnson said that the states followed the traditional regulatory scheme as set forth in the proposed model regulations because there were no other specific guidelines and "they wanted to be safe" with respect to approval by the EPA of their implementation plans.

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realistic implementation procedures. It is submitted that federal proposals set forth in the model regulations contribute little in the way of workable substantive guidelines to state and local legislators and environmental advocates interested in formulating workable means of fighting air pollution. Utilization of these federal guidelines will achieve scant progress toward effective state and local clean air legislation.

This article seeks to stimulate an understanding of existing state and local codes and the potential effectiveness of new and stronger codes by analyzing and evaluating a segment of existing legislation that contains many provisions similar to those in the federal model regulations—the air pollution control laws in the New York-New Jersey metropolitan region. This analysis and evaluation will focus on a number of broad categories into which the legislative and administrative pollution control measures of the several governmental entities concerned may be broken down: public policy statements; definition of terms; emission standards; banning of activities, material and equipment; equipment and operator licensing; enforcement devices and remedies; and civil and criminal penalties. The general approach in discussing these categories will be, where appropriate, first, to review the different and sometimes contrasting legislation of the major governmental entities within the New York-New Jersey air pollution basin; second, to provide a brief description of selected enforcement experiences with respect to particular provisions; and finally to suggest legislative criteria for judging a traditional air pollution control law's potential effectiveness.

The contrasting approaches toward regulation taken within the New York-New Jersey geographic area are all the more interesting because they are operable within a common air pollution basin, a situation that frequently occurs within the nationwide context. Moreover, analysis of the laws of the New York-New Jersey air pollution basin will be broadly useful because they exemplify the many categories of effectiveness apparent in the nation's varied regulatory schemes. Across the country, existing state and local legislation and regulations vary widely in the degree of their potential effectiveness. Some codes are limited in coverage.¹⁰ Other, more sophisticated, laws appear to have

¹⁰ In the New York-New Jersey metropolitan area, some local codes remain limited in coverage, while the state codes are reasonably comprehensive. Local codes are relatively unimportant in New Jersey, which has a large state inspection and enforcement staff; they are more important in New York because the state agency does not employ full time air pollution control inspectors, instead relying heavily on local health sanitation personnel to detect violations. Moreover, county laws, which are stricter than the state laws, see, e.g., Nassau County, N.Y., Admin. Code tit. D, ch. IX, § 9-21 (1971), may not be enforced by the county within any city, village or town having local laws consistent with state laws and regulations. N.Y. Environmental Conservation Law § 19-0709 (McKinney 1972) [hereinafter N.Y.E.C.L.].

broad coverage but contain limitations such as cumbersome enforcement procedures that forestall effective impact.¹¹ Still other laws which have broad coverage and tough standards are unenforceable, in large part because of factors external to the legislation, such as the multiplicity of pollutant sources and the lack of sufficient manpower needed to carry out enforcement.¹² A few state and local laws have had limited success.¹³ The laws within the New York-New Jersey air pollution basin exemplify each of these types of laws, and moreover contain many provisions similar to the proposed model regulations. Finally, while the federal model does not contain recommended procedural and remedial provisions, the laws of New York City, New York State, and New Jersey will be reviewed in this article because the effectiveness of the model regulations will depend upon the availability and use of these enforcement devices. Here, then, is an analysis and evaluation of the principal types of provisions found in air pollution control codes, with specific legislative and enforcement examples drawn from the New York-New Jersey metropolitan region and from the proposed model regulations.¹⁴

I. PUBLIC POLICY STATEMENT

Statutes often are prefaced by legislative statements describing the general purposes and goals sought to be accomplished.¹⁵ These statements lack the mandatory force of law, although the layman may place great weight on them. Where courts experience difficulty in interpreting statutes, however, a public policy declaration may influence judicial interpretation to some degree. It is submitted that the mere presence or absence of such a statement is not significant (neither New Jersey nor the proposed federal model has a policy declaration); nor does a statement consisting of cliché-ridden generalities similar to those used in other states have any significant impact on the effectiveness of the law. However, if the policy statement contains unusually cautious language, it may influence a court in a negative way.¹⁶ Such a statement may well be interpreted as reflecting

¹¹ See, e.g., N.Y.E.C.L. §§ 19-0303 to -0511 (McKinney 1972).

¹² See, e.g., New York City Admin. Code ch. 57, § 1403.2 (Supp. 1971).

¹³ In the New York-New Jersey metropolitan area, the law which has enjoyed uniform success is the New York City law limiting the sulfur content of fuel.

¹⁴ The model regulations contain emergency provisions, 36 Fed. Reg. 6689 (1971), which are not discussed because the purpose of this article is to review the effectiveness of routine regulations and their enforcement. The emergency provisions were recast and adopted, *id.* at 15503, and later reorganized and republished. *Id.* at 22414.

¹⁵ See, e.g., Cal. Health and Safety Code § 24198 (West 1967); Mo. Rev. Stat. § 203.030 (1969); Pa. Stat. Ann. tit. 35, § 4002 (Supp. 1972); N.Y.E.C.L. § 19-0103 (McKinney 1972); New York City Admin. Code ch. 57, § 1403.2-1.02 (Supp. 1971).

¹⁶ But see Delogu, *Legal Aspects of Air Pollution Control and Proposed State Legislation for Such Control*, 1969 Wis. L. Rev. 884. Professor Delogu's position is in disagree-

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a cautious or even dissenting attitude on the part of the legislature. It also reflects in some measure the sense of public priorities in the particular jurisdiction.

In air and other pollution control legislation, certain language signals a cautionary "yellow light." The appearance of that language in the policy declaration or in the body of the statute may substantially strengthen a defendant's legal arguments in favor of balancing the equities in a particular case toward business interests and economic development, or assist defenses of "unavoidable necessity" or arguments that insufficient medical evidence exists to prove the harmfulness of the contaminant in question. Examples of such language which "waters down" effective pollution control measures may be found in New York State's air pollution laws, which include such language as: "*reasonable degree of purity of the air resources*"; "*air purity consistent with the industrial development of the state*"; "*use of all available practical and reasonable methods to prevent and control air pollution*"; "*maximum of cooperation*"; and "*laws clearly premised upon scientific knowledge of causes as well as of effects.*"¹⁷ Such language in the New York statute signals a conservative, cautious attitude on the part of the state legislature whose primary concern in promulgating the statute apparently was the state of health of business rather than of the public.¹⁸ In contrast, economic or commercial sentiments do not appear in the declaration of policy preceding the New York City Air Pollution Control Code.¹⁹ Its sole concern is, ostensibly, pollution of the air as "a menace to the health, welfare and comfort of the people of the city and a cause of extensive damage to property." In reality, economic considerations were taken into account by the City Council in drafting the legislation, and so declarations of policy ignoring economic implications cannot be taken

ment with my hypothesis that the absence of a policy declaration, or the presence of one similar to other declarations, is unimportant. In his opinion, "Stating the basic legislative intent in a section which itself is part of the enacted legislation will strengthen the enforcement process by giving guidance to the regulated, those who regulate and the courts." *Id.* at 891-92.

¹⁷ Prior to July, 1970, all of these phrases appeared in the declaration of policy of the New York State Air Pollution Control law, which has since been amended. N.Y. Pub. Health Law § 1265 (1971), as amended Environmental Conservation Law of 1970, N.Y. Session Laws ch. 140, § 10. In February, 1971, President Nixon's proposed water control bill contained a variant of this sort of language: "taking into account the practicality of compliance." N.Y. Times, Mar. 1, 1971, at 17, col. 4. Informed sources said the insertion of the phrase had been insisted upon by the Department of Commerce with the support of the Office of Management and Budget. An official of the Council of Environmental Quality said he had no recollection of this.

¹⁸ See Nassau County, N.Y., Admin. Code tit. D., ch. IX, § 9-21.0 (1967), which contains similar language.

¹⁹ New York City Admin. Code ch. 57, § 1403.2-1.02 (Supp. 1971).

literally.²⁰ However, the declaration does communicate to the courts New York City's sense of priorities.

Thus a caveat to drafters of air pollution regulations and legislation is to avoid using cautious, negative language in policy preambles. Either avoid such policy statements altogether and let the language of the statute speak for itself, or express general antipollution goals in clear, unequivocal wording. Otherwise the language may provide potential arguments to polluting defendants, and the possibility of judicial interpretation contrary to the actual purpose of the statute or regulation may dilute its effectiveness.

II. DEFINITION OF TERMS

The section that contains formal definitions, though it may appear dull and routine, is of vital importance. How the key terms are defined determines the boundaries of the law and exactly what constitutes a violation thereof. In air pollution control or environmental protection legislation, the most important term is "air pollution" or "pollution." The term is often defined, but sometimes is not.²¹ A general definition is unnecessary if the term's meaning is covered in the section generally prohibiting or restricting, without precise standards, the emission of "air contaminants." The definition may also be amply covered in a provision generally prohibiting the emission of air contaminants which may cause detriment to health, safety, welfare or comfort.²²

The scope of the definition of the term "air pollution" will determine whether or not and under what conditions the enforcing agency will be able to act preventively and what evidence will be required to prove a violation. Before July 1970, New York State's definition required proof that the contaminant in issue was *in fact* injurious to human, plant, or animal life or property, or unreasonably interfered with the comfortable enjoyment of life or property.²³ Under the new and deliberately more liberal New York law, proof that the contaminant *may be* injurious to life or property is sufficient;²⁴ hence the more

²⁰ Exec. Sess. N.Y. City Council Comm. on Environmental Protection, May 24, 1971. Four to five hours of the session were devoted to examining the economic effect upon Con Edison and its customers of proposed regulations limiting the sulfur content of fuel. Existing contracts and possible negotiating positions between Con Edison and several major oil companies were closely examined by the Committee.

²¹ For statutory provisions giving definitions, see, e.g., Ill. Ann. Stat. ch. 111-1/2, § 1003(b) (Supp. 1972); N.J. Stat. Ann. § 26:2C-2 (Supp. 1972); N.Y.E.C.L. § 19-0105 (3) (McKinney 1972). For statutes without definitions, see, e.g., 42 U.S.C. §§ 1857 et seq. (1970); New York City Admin. Code ch. 57, § 1403.2-1.03 (Supp. 1971).

²² New York City Admin. Code ch. 57, § 1403.2-9.01 (Supp. 1971).

²³ N.Y. Pub. Health Law § 1267 (McKinney 1971).

²⁴ "Air Pollution" means the presence in the outdoor atmosphere of one or more

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recent law affords the enforcement agency wider scope for preventive action. It should be noted, however, that even this broader provision that includes possible injury to life and property does not cover possible injury to human comfort, health and welfare: the language concerning comfortable enjoyment of life remains unchanged, requiring for preventive action proof of actual rather than only possible injury to human comfort "throughout the affected area of the state."²⁵ In contrast, New Jersey's very liberal definition focuses on both health and welfare, as well as life and property, and permits preventive action to protect health and welfare and the "enjoyment" of life or property.²⁶ The definition of air pollution in the proposed federal regulations is similar to New Jersey's definition, except that, as in New York's law, proof of actual rather than only potential interference with the enjoyment of life or property is required.²⁷ However, both the term "air pollution" and its definition were deleted from the adopted federal regulations.²⁸

Preventive enforcement power with respect to activities that may be harmful to health and welfare as well as to property, like that permitted by the New Jersey regulations, is deliberately broader than power with respect to activities which may be injurious to human life and property. One's health and welfare may often be impinged upon without a concomitant threat to one's life. Proving actual injury to life is more difficult than proving a tendency to injure human welfare, which in turn requires more exact evidence than probable or actual injury to the comfortable enjoyment of life. In regulating air pollution, real difficulties arise in proving injury to life or health due in whole or in part to pollution.²⁹ Thus far air contaminant health re-

air contaminants in quantities, of characteristics and of a duration which are injurious to human, plant or animal life or to property or which unreasonably interfere with the comfortable enjoyment of life and property throughout the state or throughout such areas of the state as shall be affected thereby

N.Y.E.C.L. § 19-0107(4) (McKinney 1972).

²⁵ Environmental Conservation Law of 1970, N.Y. Session Laws ch. 140, § 2(6) (1970).

²⁶ N.J. Stat. Ann. § 26:c-2 (Supp. 1971) defines "air pollution" as:

[T]he presence in the outdoor atmosphere of one or more air contaminants in such quantities and duration as are, or *tend to be*, injurious to human health or welfare, animal or plant life or property throughout the State and in such territories of the State as shall be affected thereby . . . , (emphasis added).

²⁷ "Contaminants in such quantities and durations as interferes with the enjoyment of life or property." 36 Fed. Reg. 6687 (1971).

²⁸ *Id.* at 22406.

²⁹ Although a court may take judicial notice that the emission of dense smoke or dust in a populous community is injurious to health, it is not widely and universally accepted that other contaminants are injurious. See, e.g., *City of Rochester v. Macauley-Fien Milling Co.*, 199 N.Y. 207, 212, 92 N.E. 641, 643 (1910), where the court states: "[I]t is a matter of common knowledge of which the courts may take judicial notice that *some injury must result* from substance-laden smoke pervading the atmosphere in

search remains very limited.⁸⁰ Air pollution's cumulative, long-term health effects and its important role in multifactoral health injuries are almost impossible to prove.⁸¹ The legislature, through its definition of air pollution, directly controls the preventive powers of the enforcing agency and its ability to prosecute polluters successfully. New Jersey's broad definition, and New York's newer one, are undoubtedly legislative "green lights" to effective enforcement, and an essential ingredient of the total complexity of powers and resources needed for such enforcement.

The annual appearance of new pollutants such as PCB, the synthetic organic chemical, and the new industrial uses of familiar, toxic pollutants, such as lead or asbestos, make it imperative that the definition of "air contaminants," "contaminants" or "air pollutants" be sufficiently broad and flexible to encompass unforeseeable new contaminants or uses. Inexperienced draftsmen have an unfortunate tendency to specify known contaminants by name.⁸² Such specification is unnecessary, and may be detrimental if it is interpreted by the court as excluding contaminants not specifically named when in actual fact the legislature intended coverage of all air pollutants. New York City's Code contains a very broad definition which is designed to insure coverage of unknown as well as known pollutants: "Air contaminant means any particular matter or any gas or any combination thereof

which persons and property necessarily remain." (Emphasis added.) See *Board of Health v. New York Central R.R.*, 4 N.J. 293, 299, 72 A.2d 511, 514 (1950); *Penn Dixie Cement Corp. v. City of Kingsport*, 189 Tenn. 450, 459-60, 225 S.W.2d 270, 279 (1949).

The enforcing agency may therefore be required to convince the court of the generally injurious nature of the contaminant at issue, though actual damage need not be proved. See, e.g., *State v. Mundet Cork Corp.*, 8 N.J. 359, 370, 86 A.2d 1, 6 (1952). In nuisance cases involving the recovery of damages for interference with the comfortable enjoyment of property, or personal discomfort, annoyance, or inconvenience, courts have awarded damages and abated the nuisance; however, as one court has stated:

[T]he inconvenience must be something more than mere fancy, mere delicacy or fastidiousness; it must be an inconvenience materially interfering with the ordinary comfort, physically, of human existence, not merely according to elegant and dainty modes and habits of living, but according to plain, sober and simple notions.

Tuebner v. California Street R.R., 66 Cal. 171, 174, 4 P. 1162, 1164 (1884).

⁸⁰ See, e.g., Cassell, *The Health Effects of Air Pollution and Their Implications for Control*, 33 *Law & Contemp. Prob.* 197 (1968).

⁸¹ See, e.g., *id.*; Fells Institute of Local and State Government, *Government Organization for an Air Resource Management and Control System in the Penjerdel Region*, § II (1968).

⁸² See, e.g., *Ind. Stat. Ann.* § 35-4602(d) (1969) ("Air contaminant" is dust, fumes, gas, mist, smoke or vapor, or any combination thereof."); *Ore. Rev. Stat.* § 449.760(2) (1970) ("Air contaminant" means a dust, fume, gas, mist, odor, smoke, vapor, pollen, soot, carbon, acid or particulate matter, or any combination thereof."); *Pa. Stat. Ann. tit. 35, § 4003(4)* (1964) ("air contaminant." Smoke, dust, fumes, gas, odor, mist, vapor, pollen, or any combination thereof.).

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in the open air, other than uncombined water or air."³³ The definition recommended by the proposed model regulations tended toward specificity: "Air contaminant shall mean dust, fumes, mist, smoke, other particulate matter, vapor, gas or any combination thereof."³⁴ The definition finally adopted is even more specific. It unnecessarily adds "odorous substances,"³⁵ although odors are gases.

The scope of definitions of "air" as it affects the air pollution control agency's jurisdiction over air inside buildings or other enclosures is important. This air is traditionally under the regulation of the Department of Health and/or the Department of Industrial Hygiene. New York State's definition of "outer air" contains the traditional limitations.³⁶ New York City's Code also contained a definition of open air which confined the agency's jurisdiction to outside air.³⁷ In the fall of 1971, the definition was broadened to include "all the air available for human, animal, or plant respiration, but shall not include the air in equipment and private dwellings."³⁸ The major purpose of the revision was to include the polluted air in subway stations and tunnels within the agency's jurisdiction. The proposed model regulations do not include a definition of "air," "open air," or "outer air,"³⁹ leaving problems of agency jurisdiction to be worked out locally.

Many other terms are generally defined, and any particular definition may be crucial in a given case. The foregoing discussion is limited to a few seemingly innocuous terms which have great impact on an enforcement agency's jurisdiction and powers, and the ultimate success of the law. It is intended merely to be illustrative of the problems caused by inattention to definitions, to urge particular care in defining such terms as "air pollution," "air contaminant" and "air."

III. EMISSION STANDARDS

Most substantive provisions of present air pollution control laws regulate air pollution by prohibiting the emission from a particular source of a named pollutant in a greater quantity than a specified amount or density. The principal traditional regulatory technique is the application of smokestack emission standards, despite the fact that very few stack emissions are mechanically monitored.⁴⁰ Theo-

³³ New York City Admin. Code ch. 57, § 1403.2-1.03(c) (Supp. 1971).

³⁴ 36 Fed. Reg. 6687 (1971).

³⁵ *Id.* at 22414.

³⁶ 10 N.Y. Codes, Rules & Regs. § 175.3(f) (1964). "Outer air." All space outside of buildings, stacks or exterior ducts."

³⁷ New York City Admin. Code ch. 41, § 892-2.0 (1971).

³⁸ New York City Admin. Code ch. 57, § 1403.2-1.03(ff) (Supp. 1971).

³⁹ 36 Fed. Reg. 6687 (1971).

⁴⁰ Although some large utility or industrial stacks may be monitored, small sources

retically, hundreds of thousands of stacks scattered over a given jurisdiction are to be kept under regular observation by air pollution inspectors.

It is generally assumed that the wider the range of pollutant emission standards and the stricter the standards, the more likely it is that a jurisdiction will be seriously committed to air pollution control and that enforcement efforts will result in less air pollution. One can learn little, however, about commitment and the effectiveness of even a law with tough standards without first examining the law's underlying operating assumptions and the jurisdiction's enforcement program. Tough standards and broad coverage, as well as the presence of environmental pressure groups with political influence, demonstrate a serious concern with air pollution but do not indicate whether laws are either enforceable or enforced. A gap between emission standards and enforceability is revealed when standards depend for enforcement upon an inspector's personal observation of a smoke plume at the place where the equipment normally operates and are unenforceable unless the number of emission sources is manageable in relation to the available number of field and other enforcement personnel. What constitutes a manageable number of sources depends in turn upon the quantity of resources committed to air pollution control and the distribution of the resources within the agency. In cases where the number of pollution sources is extremely high, as in New York City, it is quite improbable that within the foreseeable future there will ever be sufficient resources to regulate pollution emissions at the source. And, even if the moneys were available, policing mass numbers of sources to enforce emission standards is an inefficient and ineffective regulatory technique.

A. *Smoke Emission*

Smoke emission laws are a classic illustration of the failure of emission standard regulation as a major control technique. The typical statutory provision prohibits or restricts for a specified time period the emission of smoke or visible emissions of a shade or density equal to or darker than a specified number on the Ringelmann Chart, a chart used to measure the darkness of emissions.⁴¹ The provision may

and most major ones are not. For example, Consolidated Edison recently entered into an agreement with the New York City Department of Air Resources to install system-wide smoke and nitrogen oxide monitoring equipment by the end of 1972. N.Y. Post, Mar. 14, 1972, at 10, col. 8.

⁴¹ See, e.g., New York City Admin. Code ch. 57, § 1403.2-9.03 (Supp. 1971), where it is stated:

(a) No person shall cause or permit the emission of air contaminant of:

(1) A density which appears as dark as or darker than No. 2 on the

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be applicable to specified sources such as incinerators and fuel burners⁴² or to "any single source."⁴³ The latter is recommended by the proposed model regulations,⁴⁴ which define "source" to include "property, real or personal, or person contributing to air pollution."⁴⁵ In more sophisticated laws, the opacity of the air contaminant emission, as well as its density, may be expressly prohibited or restricted.⁴⁶ The opacity of air contaminant is measured by comparing it to the various densities of smoke shown on the Ringelmann Chart, and it has been held that this method for measuring the opacity of air contaminants of a hue different from gray is not unconstitutionally vague under the due process clause of the United States Constitution.⁴⁷ In addition, the point at which the emission shall be measured may or may not be specified.⁴⁸

standard smoke chart or of an opacity which obscured vision to a degree equal to or greater than smoke of No. 2 density on the standard smoke chart; or

(2) A density which appears as dark or darker than No. 1 on the standard smoke chart, but less than No. 2 on said chart, or of such opacity as to obscure vision to a degree equal to or greater than smoke of No. 1 density on the standard smoke chart, but less than No. 2 on said chart, if such an emission continues for longer than 2 minutes in the aggregate in any 60 minute period.

(Standard smoke chart refers to Ringelmann Chart).

⁴² See, e.g., 10 N.Y. Codes, Rules & Regs. § 191.2 (1969), which prescribes different smoke emission standards for combustion equipment put into operation before and after February 1, 1967; section 194.5 sets forth different smoke emission standards for incinerators installed before and after January 26, 1967; section 189 lays down different smoke emission standards for by-product coke plants depending on five specified conditions. N.J. Air Pollution Control Code ch. 4, § 2.1 (1971), prescribes standards for fuel-burning equipment; section 3.2 sets forth standards for incinerators.

⁴³ See, e.g., Los Angeles County, Cal., Air Pollution Control District, Rules and Regs., Rule 5 (1972).

⁴⁴ 36 Fed. Reg. 6691 (1971) recommends:

Visible emission restrictions for stationary sources.

(a) No person will discharge into the atmosphere from any single source of emission whatsoever any air contaminant of a shade or density equal to or darker than that designated No. 1 in the Ringelmann Chart or 20 percent opacity.

(b) A person may discharge into the atmosphere from any single source of emission for a period or periods aggregating not more than 3 minutes in any 60 minutes air contaminants of a shade or density not darker than No. 3 on the Ringelmann Chart of 60 percent opacity.

⁴⁵ *Id.* at 6687. The breadth of the definition of "source" was such that the restriction of visible emissions appeared to include cigarette, pipe and cigar smokers! Apparently this potential problem was called to the attention of the EPA because the adopted definition omits the language "or person." *Id.* at 22406.

⁴⁶ See, e.g., New York City Admin. Code ch. 57, § 1403.2-0.03 (Supp. 1971).

⁴⁷ *People v. Plywood Mfrs. of California*, 137 Cal. App. 2d 859, 291 P.2d 587 (1955), appeal dismissed sub nom. *Union Oil Co. v. California*, 351 U.S. 929 (1956).

⁴⁸ See, e.g., New York City Admin. Code ch. 57, § 1403.2-9.03(b) (Supp. 1971): The density of opacity of an air contaminant shall be measured at the point of its emission, except: (1) When the point of emission cannot be readily observed, it may be measured at an observable point on the plume nearest the point of

Smoke control is the oldest and the most widespread of the air pollution control laws. It was the first kind of emission to be regulated.⁴⁹ Today, every locality that has an air pollution control law limits to some degree the emission of smoke from some or all possible sources. In the New York metropolitan area the emission of smoke or visible air contaminant as measured by the Ringelmann Chart is limited to varying degrees by New York State,⁵⁰ New York City,⁵¹ New Jersey,⁵² Nassau County,⁵³ Westchester County,⁵⁴ and some New Jersey cities and counties.⁵⁵ The proposed model regulations suggest the control of smoke emissions in the traditional manner,⁵⁶ despite the fact that traditional law and widespread enforcement efforts over a substantial period of time have failed to restrain the emission of smoke or other visible emissions in the New York-New Jersey and other metropolitan areas.

The failure of local smoke control laws is due primarily to the fact that the regulatory technique and the nature of the violation preclude systematic control of large numbers of emission sources. A standard-setting regulatory technique permits the polluter to use polluting materials and equipment provided that he stays within the

emission, or (2) In the case of air contaminant emitted from a source outside of New York, it shall be measured after the plume crosses the jurisdictional boundary of New York City.

⁴⁹ Smoke control was the first kind of emission to be regulated. The first general smoke control ordinance in the country was adopted in Chicago in 1881. Cincinnati followed in 1891, St. Louis in 1893, and the City of Brooklyn in 1895. In New York City, smoke emissions of varying densities have been prohibited for about eighty years. In 1952, the New York City Department of Air Pollution Control was established. Rules and regulations were enacted two years later. For four years prior to the establishment of the Department of Air Pollution Control, from 1948 to 1952, smoke control was enforced by the Bureau of Smoke Control, a division of the Department of Buildings. Interview with Alfred Pieratti, former Executive Director of Engineering and Enforcement of the New York City Dep't of Air Resources, April 12, 1971.

Early cases indicate that the New York City Department of Health, which had jurisdiction at the time, actively attempted to enforce the smoke law from the turn of the century to World War I, and from the 1930's to the outbreak of World War II. See, e.g., *People ex rel. Newman v. Murray*, 174 Misc. 251, 19 N.Y.S.2d 902 (N.Y.C. Magis. Ct. 1940); *People v. Cunard White Star, Ltd.*, 280 N.Y. 413, 21 N.E.2d 489 (1939); *People v. New York Edison Co.*, 159 App. Div. 786, 144 N.Y.S. 707 (1913); *People v. New York Central & Hartford R.R.*, 159 App. Div. 329, 144 N.Y.S. 699 (1913); *Department of Health v. Ebling Brewing Co.*, 78 N.Y.S. 11 (N.Y.C. Mun. Ct. 1902).

⁵⁰ 10 N.Y. Codes, Rules & Regs. § 191.2 (1969).

⁵¹ New York City Admin. Code ch. 57, § 1403.2-9.03 (Supp. 1971).

⁵² N.J. Air Pollution Control Code ch. 4, § 2.1 (1971).

⁵³ Nassau County, N.Y., Admin. Code § 9-21.42 (1971).

⁵⁴ Westchester County, N.Y., Sanitary Code art. 16, § 1614 (1971).

⁵⁵ See, e.g., East Orange, N.J., Ordinance 12, § 4 (1964); Newark, N.J., Ordinance 65 A, § 5 (1958).

⁵⁶ 36 Fed. Reg. 6691 (1971). In the adopted emissions limitations it is stated, following the smoke control provision, that, "[t]his limitation would generally eliminate visible pollutant emissions from stationary sources." *Id.* at 22406.

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standard. Moreover, the burden is upon the enforcing agency to find and observe the violation. In the case of a smoke emission, violations are evidenced by a dark plume which usually occurs only irregularly. Unlike water pollution, emissions into the air are rarely continuous, and to catch the polluter in the act of violating the law is extremely difficult.⁵⁷ Systematic smoke-inspection systems thus tend to be time-consuming and haphazard. In addition, compliance with an air pollution control code is not a finite, discrete act. Even good equipment with a control mechanism will pollute unless it is properly maintained, operated, and repaired; the need for regular, frequent inspections thus arises.⁵⁸ It should be noted that licensing does not eliminate this need.⁵⁹

As a primary means of enforcement, smoke emission laws are inefficient and consequently expensive. However, where the pollution sources are of a manageable number, these laws are a useful supplementary enforcement technique, and they are also useful for agency crackdowns against large polluters. Even for supplementary uses, however, the enforcement of smoke emission standards requires adequate inspectorial and back-up clerical staff to spot-check sources during the regular working day as well as at night and during weekends and holidays. Fuller development and required use of scanning and monitoring technology will make possible such continuous monitoring.

B. *Particulate Matter Emissions*

Particulate matter is the major visible ingredient of smoke,⁶⁰ and indirect efforts to control the emission of particulates date back to early laws on smoke and open fires. Since these indirect methods failed, New York City decided in 1964 to attack the matter directly. It adopted two types of regulations: the first required reasonable precautions with respect to activities which cause quantities of visible particulates to become airborne (e.g., building construction and demolition);⁶¹ the second type restricted by weight the quantity of par-

⁵⁷ Conversations with New York City and New Jersey air pollution control personnel.

⁵⁸ *Id.*

⁵⁹ Even with a licensing and effluent charge system, "constant inspection" is required to avoid cheating in the Ruhr Valley, which contains the world's most successful water pollution control system. *Wall Street Journal*, Nov. 12, 1971, at 1, col. 8.

⁶⁰ In the recommended emissions limitations adopted by the EPA and the proposed model regulations, smoke control is classified under the heading "Control of Particulate Emissions" and the subheading "Visible Emissions." 36 Fed. Reg. 6691 (1971).

⁶¹ The New York City provision reads: "No person shall cause or permit particulate matter to be handled, transported or stored without taking such precautions as may be ordered by the administrator to prevent particulate matter from becoming airborne." New

ticulate matter which might lawfully be emitted from fuel burning equipment, incinerators, and process equipment.⁶² The federal recommended model regulations included both categories, and they are retained in the adopted regulations.⁶³ In the metropolitan area, New York State and New Jersey have adopted the second type of regulation.⁶⁴

In New York City, the principal sources of airborne dust, which are the targets of the first type of regulation noted above, are construction and demolition activities. The law requires that persons engaged in these polluting activities observe those operating procedures specified in the legislation for minimizing the emission of dust. Since the polluting activities themselves are legal, a substantial burden is placed on the enforcing agency to check the activities in order to spot violations of operational standards and to induce compliance with the law. In New York City the responsible agency does not spot-check the pollution sources because it lacks sufficient manpower. As a consequence, summonses have rarely been served for violation of the airborne-dust laws.⁶⁵ Instead, control of dust in New York City has depended entirely on industrial self-regulation. Industry agreed to adopt and carry out procedures to minimize airborne dust.⁶⁶ Many of these procedures are specified in the federal proposed and adopted model regulations.⁶⁷

York City Admin. Code ch. 57, § 1403.2-9.11 (Supp. 1971) (most of this section is devoted to asbestos spraying).

⁶² New York City Admin. Code ch. 57, § 1403.2-9.23, formerly New York City Air Pollution Code § 9.09 (1964). The new section covers less equipment than did the old section. The former applies to "equipment installed or altered after the effective date of this section," which includes old incinerators and fuel burners using residual oil because they are required by law to be altered, but would not include old process equipment or fuel burning equipment using light oil. The old code covered all equipment, old, new, altered and unaltered. However, the new section contains a broader coverage of particulates, including gas and liquid particulates, as well as solids.

⁶³ 36 Fed. Reg. 22406 (1971).

⁶⁴ See, e.g., N.J. Air Pollution Control Code ch. 5, § 2 (fuel burning equipment); ch. 7, § 2 (manufacturing processes); ch. 11, § 3 (incinerators) (1971); 10 N.Y. Codes, Rules & Regs. § 202.2 (fuel burning); § 194.4 (incinerators); § 187.3 (process equipment generally); § 188.3 (ferrous jobbing foundries); § 195.3 (cement and lightweight aggregate industry pyro-process) (1971).

⁶⁵ Interview with Alfred Pieratti, *supra* note 49. The following indicates the seriousness of New York City's airborne dust problems:

Demolition dust, including old asbestos, is a serious source of air pollution. Did you know that in 1968 about 4,000 buildings were demolished in the City? The same for 1969, and we anticipate a twenty five to thirty percent increase of that figure if proposed housing programs go ahead. The dust is so bad that you can sometimes get a number 3 or 4 Ringelmann reading from the dust.

It should be noted that such a reading would indicate black smoke. Interview with Harold Romer, Assistant Commissioner, New York City Air Resources Department, Jan. 25, 1971.

⁶⁶ Interview with Harold Romer, *supra* note 65.

⁶⁷ 36 Fed. Reg. 6692, 22406 (1971).

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It can reasonably be assumed that compliance with airborne dust procedures is low, given the low rate of compliance with pollution control laws generally and the fact that New York City's air continues to contain particulates from many sources substantially in excess of federal and state standards.⁶⁸ What proportion of New York City's particulates result from construction and demolition activities is not known with any certainty. Except in the controlling of asbestos dust, the law has received little attention, primarily because other control activities demand priority. The airborne dust regulation is an example of New York City's tendency to *enact* many laws regulating all of the known pollutants without paying close attention to the feasibility of *enforcing* the particular law.

The legislative technique of regulating operating procedures in order to control dust emissions is expensive for the enforcing agency if the sources are numerous. Draftsmen of air pollution measures who are seeking to eliminate airborne dust from construction and demolition activities must first consider the feasibility of patrolling the numerous sources of such dust in light of available funds and manpower. If these logistical resources are insufficient to provide for effective patrolling of numerous sources of dust pollution, a law focusing on mandatory operational procedures will be, as the New York City experience shows, of little avail. Other alternatives must be considered and weighed. Control of specific types of equipment might be useful in modifying dust emission.⁶⁹

These alternatives require technological investigation and a balancing of social and economic factors peculiar to the locality concerned. Without a realistic appraisal of available resources and careful consideration of alternative solutions, the danger of passing an unenforceable law is grave. It should be noted that such unenforceable laws not only are ineffective in abating pollution, but indeed harm antipollution efforts because their existence creates a false sense of security among persons interested in the environment and thus discourages passage of more effective measures.

The second type of particulate matter emission restrictions—which forbids, by weight, specific quantities of pollutant emissions

⁶⁸ E.g., the citywide annual average readings for suspended particulates (compiled on a fiscal year) are as follows: 1968-69 — 96.2 $\mu\text{g}/\text{m}^3$ (micrograms per cubic meter of air); 1969-70 — 104.8 $\mu\text{g}/\text{m}^3$; 1970-71 — 106.6 $\mu\text{g}/\text{m}^3$ (an increase of 7% in two years). The minimum federal standard is 75 $\mu\text{g}/\text{m}^3$ annual average.

Recently issued dustfall data for 1971 provide, for the first time, a basis for comparison with New York State air quality standards (there are no federal standards for dustfall); on an annual basis only 16% of the monthly measurements may exceed .90 $\text{mg}/\text{cm}^2/\text{mo}$. In 1971, 31% of the readings exceeded that standard (the peak reading was 4.19 $\text{mg}/\text{cm}^2/\text{mo}$. in the borough of Manhattan).

⁶⁹ See discussion of regulation of sulfur fuel equipment in text at notes 130-35 *infra*.

from a specified source—depends upon administration of stack tests to determine whether operating equipment is emitting excessive particulates. However, stack tests are extremely expensive,⁷⁰ and the available instruments for conducting stack tests are not accurate.⁷¹ Consequently the law has never been enforced in New York City, except to test a prototype of new equipment.⁷² New Jersey, on the other hand, enforces the law with respect to operating equipment by using a mathematical guide designed to gauge probable (expected) particulate matter emission, as well as by testing the equipment in some cases.⁷³ In an administrative hearing involving excessive particulate matter emissions from a ferrous foundry, the agency justified its use of the guide by stating that "there are several thousand stacks in New Jersey and it would be impractical to test them all. It would take many years, and be very expensive both for the state and the company involved."⁷⁴ The validity of the guide has never been litigated in the courts, but in at least one instance its results have proved remarkably accurate.⁷⁵ Expanded use of this guide, or the development of other guides, should be explored as a useful enforcement tool in the absence of reasonable and reliable instrumentation.

In the absence of relatively inexpensive and accurate measuring instruments or the use of a substitute guide, a particulate emission law such as New York City's is a useless regulatory technique. Industry must be required to self-monitor at specified intervals and to forward the results under oath to the agency. Presumably, then, the law will create a market for the development of accurate instruments. However, even this development will not solve particulate emission problems as long as the technology remains excessively expensive. Only major industries and power plants—rather than every fuel-burning, refuse-burning, or small manufacturing source—will be able

⁷⁰ Statement by Robert Rickles, former New York City Air Control Commissioner, Executive Session, New York City Council Committee on Environmental Protection, May 7, 1971.

⁷¹ See, e.g., *Bus. Week*, Jan. 29, 1972, at 84.

⁷² Rickles Statement, *supra* note 70.

⁷³ Interviews with Herbert Wortreich, Chief Enforcement Officer, Bureau of Air Pollution Control, N.J. Dep't of Environmental Protection, September 13, 1968, and February 8, 1972. See, e.g., *Shamoon Industries, Inc. v. Dept. of Health*, 93 N.J. Super. 272, 225 A.2d 699 (1966), for an example of a case using the mathematical guide.

⁷⁴ Hearings on Application of Universal Rundle Corp. Before the N.J. Dep't of Health, May 18, June 8, 9, 22, 23, July 20, 21, August 4, 1967. (At that time, the Air Pollution Control Agency was part of the State Department of Health.) When the stack emissions of Universal Rundle were actually tested, it was found that the estimate of particle matter emission using the state's mathematical guide was accurate within a one to two percent margin of error. Wortreich, *supra* note 73.

⁷⁵ Interviews with Herbert Wortreich, *supra* note 73. Cf. *Bus. Week*, Jan. 29, 1972, at 84, for a discussion of some of the problems that may be encountered in using "estimates" of quantities of particulate matter discharges in pollution control litigation.

to afford mechanical monitoring. The numerous small sources, which together contribute substantially to pollution, will need to be eliminated or consolidated wherever possible.

C. *Visible Emission from Motor Vehicles*

Although smoke emission laws are generally applied only to stationary sources, they may also be applied to mobile sources such as motor vehicles. Some jurisdictions also specifically regulate, in a variety of ways, the emission of air contaminants from motor vehicles as part of their air pollutant control regulations.⁷⁶ For many years quite a few jurisdictions have also prohibited the emission of smoke from motor vehicles under their vehicle safety and traffic laws.⁷⁷ Although under the Clean Air Amendments of 1970 the federal government has preempted regulation of new motor vehicles,⁷⁸ it leaves regulation of used motor vehicles and engines to state and local governments.⁷⁹

The proposed model regulations suggest the enactment of a two-standard visible emission provision applicable to motor vehicles: first, for gasoline-powered engines a time limit of five consecutive seconds is suggested for any visible emission;⁸⁰ second, for diesel-powered engines the same time limit is suggested for an emission darker than No. 1 on the Ringelmann Chart.⁸¹ New York City's law, on the other hand, does not distinguish between gasoline- and diesel-powered engines. It prohibits visible emissions from any "internal or external combustion engine of a motor vehicle, while the vehicle is stationary, for longer than ten consecutive seconds" and from "a motor vehicle after the vehicle has moved more than ninety yards from a place where the vehicle was stationary."⁸² New York City also restricts motor-vehicle engine idling.⁸³

⁷⁶ See, e.g., N.J. Air Pollution Control Code ch. 14, § 2 (1971) (applying only to diesel-powered motor vehicles); N.Y. Vehicle and Traffic Law § 375(28) (McKinney 1971); 10 N.Y. Codes, Rules & Regs. § 192 (setting control equipment and emission standards for motor vehicles manufactured and assembled after June 30, 1967), § 193 (setting smoke emission control standards for diesel-powered motor vehicles) (1967); Nassau County, N.Y., Admin. Code §§ 9-21.40, .56 (1971) (restricting idling of motor vehicle engines); New York City Admin. Code ch. 57, § 1403.2-9.05 (Supp. 1971) (limiting visible air contaminants from internal combustion engines).

⁷⁷ See, e.g., Cal. Vehicle Code § 27153 (West 1971); Conn. Gen. Stat. § 14-80(c) (1968); Ga. Code Ann. § 68-1717 (Supp. 1971); Mass. Ann. Laws ch. 90, § 16 (Supp. 1971); Ore. Rev. Stat. § 483.448 (1969).

⁷⁸ 42 U.S.C. § 1857f-6a(a) (1970).

⁷⁹ 42 U.S.C. § 1857f-6a(c) (1970).

⁸⁰ 36 Fed. Reg. 22406 (1971).

⁸¹ *Id.*

⁸² New York City Admin. Code ch. 57, § 1403.2-9.05 (Supp. 1971).

⁸³ *Id.*

Regardless of how the law is drafted, all of the foregoing legislative provisions rely for their enforcement upon the maintenance by the agency of a system of routine street policing of the moving or idling emission sources. The burden of maintaining such a program is clearly far greater than the responsibility for routinely spot-checking stationary sources. The sources are mobile and number in the millions, while stationary sources number in the thousands or tens of thousands. As a result of the magnitude of the burden of inspection, this law generally has not been enforced in the New York-New Jersey metropolitan area.⁸⁴ The police might partially enforce it but generally do not.⁸⁵ New York City air pollution control inspectors enforce motor vehicle emission laws on a haphazard basis "whenever we see a smoking car," and "when there are crackdowns."⁸⁶ With police cooperation, and the allocation of resources adequate to the task, some degree of systematic enforcement is certainly possible. One viable method of enforcement would be the posting of inspectors at bus terminals, truck routes, taxi stands, and garages. However, not much progress can be made by the enforcement of present *visible* emission laws with respect to motor vehicles.

The principal purpose of such a law is to control old or badly maintained vehicles that emit visible smoke and suspended particulates. However, the dangerous pollutants emitted are invisible to the naked eye—i.e., carbon monoxide, nitrogen oxide, hydrocarbons, and miniscule lead particulates.⁸⁷ The dangerous invisible pollutants are

⁸⁴ A record of New York information is available by county: Westchester County, ten estimated summonses in 1970; Rockland County, one summons in 1970; Suffolk County, no summonses in 1970; Nassau County, 1,335 summonses in 1970 for violation of county motor vehicle emission law (Nassau County Admin. Code §§ 9-21.40, .56 (1971)). Data compiled from Local Air Pollution Control Agency Information Forms, submitted to the EPA as part of grant application. New York City, 352 summonses in 1968, 69 summonses in 1969, three summonses in January 1970, Interview with Alfred Pieratti, *supra* note 49; some information concerning New Jersey enforcement experiences is also available. In June 1971, a rule prohibiting excessive smoke from diesel engines was enacted, N.J. Air Pollution Control Code ch. 14, § 2 (1971), and in the succeeding six months about 1,500 summonses were issued by the state police, not by the New Jersey Environmental Protection Agency. Local police did not cooperate in the program. Before June 1971, the state law prohibiting dark or offensive emissions from a motor vehicle was not enforced. Conversation with Paul Arbesman, EPA Regional Officer, Region II, in charge of New Jersey, March, 1972.

⁸⁵ With the exception of the above six months' experience in New Jersey, the police do not generally enforce auto emission laws, and even in New Jersey the local police did not cooperate. Conversation with Paul Arbesman, *supra* note 84.

⁸⁶ Interview with Alfred Pieratti, *supra* note 49. In Nassau County during fiscal 1970, of 2,590 violations cited, 1,335 were for vehicle emissions, 500 were for "nuisance," 155 for open burning, and 600 for smoke. Local Air Pollution Control Agency Information Forms filed with the EPA for the 1970 grant period.

⁸⁷ See Calhoun, Report to New York City Council: The Control of Automotive Air Pollution in New York City, Yale Legislative Service (1970).

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therefore reduced by enforcement of this law only insofar as they are reduced by proper maintenance of vehicles, especially of older vehicles. Assuming the difference to be substantial, the law would be meaningful only if its enforcement led to proper maintenance of the vehicle—a questionable result, since there are no data showing that fines alone are an adequate way to ensure good maintenance. In a somewhat comparable and more thoroughly studied situation in New York, housing maintenance, fines have not succeeded in bringing about proper maintenance.⁸⁸ Even if a fine exceeds the cost of repairing the particular violation, therefore inducing the violator to make the particular repair rather than pay the fine, there is no evidence that the fine will also cause a violator thereafter to maintain good housekeeping practices. The cost of general maintenance as opposed to a specific repair, the chances of getting caught again, the problem of inducing change in a pattern of established habits, and the ability of members of lower economic classes in society (older cars are generally owned by poorer people) or of marginal businesses to undertake additional expenses, are all factors which will influence the owner's decision concerning general maintenance.

Regulations restricting visible and invisible emissions from motor vehicles will, of course, comprise a useful supplementary enforcement tool in the near future when motor vehicles contain the control equipment required by the Clean Air Amendments and are powered by a relatively non-polluting fuel.⁸⁹ The checking would be done routinely at annual state motor vehicle inspections.⁹⁰ However, it is suggested that the law must be made viable by the following means: the inspection must be conducted by the state rather than private garages; a technical means of measuring the pollutant emission rapidly and accurately must be developed; control equipment must be developed which will operate efficiently, without maintenance, for a period equivalent to

⁸⁸ For excellent studies regarding housing maintenance, see, e.g., Castrataro, *Housing Enforcement: A Century of Failure in New York City*, 14 N.Y.L.F. 60 (1968); Grad, *Final Report of the Study of Housing Maintenance and Enforcement* May 18, 1964-June 30, 1967, Legislative Drafting Research Fund, Columbia University (1967).

⁸⁹ 36 Fed. Reg. 15486 (1971). The introduction to this section states:

In the comments submitted to the Environmental Protection Agency following publication of the notice of proposed rule-making, many questions were raised about . . . transportation control measures. The Environmental Protection Agency is engaged in the preparation of information to assist States in employing such measures in their programs for attainment and maintenance of the national ambient air quality standards. There will be included, among other things, information on the extent to which motor vehicle inspection programs and emission control devices applicable to in-use motor vehicles can be expected to contribute to improvements in ambient air quality.

⁹⁰ New Jersey is the first state to have already initiated an annual exhaust emission check-up. The program began in 1972. *Bus. Week*, August 7, 1971, at 26.

about one year's driving; and the necessary repairs must be made before the vehicle may be driven again.

D. *Emission of Hazardous Air Pollutants*

The EPA has suggested stack sampling as a major technique in controlling the emission of the two hazardous pollutants beryllium and mercury.⁹¹ A hazardous air pollutant is defined by the Clean Air Amendments of 1970 as "an air pollutant to which no ambient air quality standard is applicable and which in the judgment of the Administrator may cause, or contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness."⁹² In December 1971, the EPA published its first proposed national emission standards for hazardous pollutants.⁹³ The pollutants include asbestos, beryllium, and mercury. Following public hearings, the EPA must adopt emission standards, unless the pollutants are found to be "clearly . . . not . . . hazardous."⁹⁴ The latter is improbable because of the substantial medical documentation indicating the serious hazard of prolonged or concentrated exposure to asbestos, beryllium, or mercury.⁹⁵

Beryllium emission standards are proposed for extraction plants, machine shops, ceramic plants, propellant plants, incinerators, and rocket-motor test facilities.⁹⁶ The EPA suggests that stacks be sampled⁹⁷ at ninety-day intervals or that industry-operated networks sample ambient air as the method of determining compliance.⁹⁸ The proposed mercury standards are applicable only to mercury-cell chloralkali plants and primary mercury mines,⁹⁹ although mercury actually emanates from a wide variety of urban sources, including coal-fired power plants, paint, primary non-ferrous smelters, incinerators, mercury processing plants, and general laboratories and hospitals.¹⁰⁰ The only proposed enforcement technique is stack monitoring, also to be undertaken at sug-

⁹¹ 36 Fed. Reg. 23244-45 (1971).

⁹² 42 U.S.C. § 1857c-7(a)(1) (1970).

⁹³ 36 Fed. Reg. 5931 (1971), listing hazardous air pollutants. See also *id.* at 2340, setting forth proposed standards.

⁹⁴ 42 U.S.C. § 1857c-7(b)(1)(B) (1970). Promulgation of national emission standards does not prevent states or local jurisdictions from adopting more stringent limitations. 36 Fed. Reg. 23242 (1971).

⁹⁵ EPA Office of Air Programs Publication No. APTD-6753, Background Information—Proposed National Emission Standards for Hazardous Air Pollutants: Asbestos, Beryllium and Mercury 3-5, 10, 15-16 (1971). For a discussion of the harmful effects of mercury, see Council on Environmental Quality, Toxic Substances 12 (1971). For two excellent articles on asbestos, see *The New Yorker*, October 12, 1968, at 117, and *id.*, October 23, 1971, at 147.

⁹⁶ 36 Fed. Reg. 23243 (1971).

⁹⁷ *Id.* at 23244.

⁹⁸ *Id.*

⁹⁹ *Id.* at 23245.

¹⁰⁰ EPA Office of Air Programs Publication, *supra* note 95, at 16.

gested intervals of ninety days.¹⁰¹ As discussed above,¹⁰² local experience with stack sampling indicates that such programs are not enforced because of the expense, inconvenience and inadequacy of present technology. Therefore, unless the beryllium and mercury emission control program stimulates technological development, and is underwritten by industry or the federal government, the state and local governments will be unable to enforce the federal emission standards.

The proposed asbestos emission standard is two-fold: first, reduction of the emission from mining, milling, manufacturing and fabricating operations, and second, prohibition of asbestos spraying for fire-proofing and insulation.¹⁰³ The latter is discussed later in this article under the heading "Banning Activities of Fuels." The former sources are regulated by requiring the use of industrial fabric cleaners¹⁰⁴ or of other equally effective fire-proofing methods.¹⁰⁵ In addition, elimination of visible emissions is required.¹⁰⁶ The enforcement of such emission and operational standards will require substantial commitment of resources. Thus the effectiveness of the law will turn upon the feasibility of policing asbestos mining, milling, manufacturing and fabricating operations.¹⁰⁷ The familiar problem of unenforceable legislation arises again in the area of emission of hazardous air pollutants. Stack sampling, suggested in the federal proposals, is not a viable technique due to its enormous cost and the inadequate technology available. Replicating the federal proposals will therefore accomplish little in eliminating hazardous air pollutants, and other alternatives must be considered.

E. *Emissions That Affect Health or Welfare, or Are a Nuisance*

Emission standards which depend for their enforcement on an inspector's personal observation of violations are necessary in the first place as a means of controlling obnoxious odors, because the nose is still the best instrument for gauging the offensiveness of odors; and, second, as a catch-all provision because air pollution control is a rapidly-changing area of public health that makes exhaustively inclusive

¹⁰¹ 36 Fed. Reg. 23245 (1971).

¹⁰² See text following note 70 *supra*.

¹⁰³ 36 Fed. Reg. 23242 (1971). See also *id.* at 23207.

¹⁰⁴ *Id.* at 23242.

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ New York City explicitly restricts the emission of these hazardous pollutants, and of cadmium, under specification clauses recently added to its "catch-all" provisions protecting the health and general welfare. See text at notes 108-15 *infra*. Asbestos "emitted from the brakelining of a motor vehicle during normal use" is exempt. New York City Admin. Code ch. 57, §§ 1403.2-9.01(a), (c) (Supp. 1971). These provisions were added to the New York City Air Pollution Control Code in the fall of 1971, and they have not been enforced.

specific coverage an impossibility. A locality with any sort of air pollution control law usually has a general provision protecting the health and general welfare of persons and property from the effects of air pollution.¹⁰⁸

This provision is sometimes referred to as the "nuisance section" because of its historical origin, even though it may not contain the term "nuisance." In the majority of states, the use of the term "nuisance" in conjunction with protection of health and welfare may cause confusion in interpretation. Violation of the provision does not depend upon whether defendant's acts constituted a common law nuisance.¹⁰⁹ The air contaminant emissions prohibited under such a provision include odors—whether or not explicitly specified—and in fact the provision is used principally for the purpose of controlling their emission.¹¹⁰ Indeed, in smaller communities, and in many larger ones, the nuisance provision, along with clauses prohibiting open burning and smoke emissions, is often the most frequently enforced air pollution control law.¹¹¹ The section may also be drafted, as in New York City's Code, to include those pollutants which are not

¹⁰⁸ See, e.g., N.J. Air Pollution Control Code ch. 6, § 2 (1971); 10 N.Y. Codes, Rules & Regs. § 186 (1969); Nassau County, N.Y., Admin. Code tit. D, ch. IX § 9-21.46 (1971); Westchester County, N.Y., Sanitary Code art. 16, § 1611 (1971).

¹⁰⁹ See, e.g., *City of Buffalo v. George P. Ray Mfg. Co.*, 124 N.Y.S. 913 (Super. Ct. Erie Co. 1910), where the court held that the violation of a Buffalo city ordinance similar to provisions protecting health and welfare from the effects of air pollution did not depend on whether the defendant's act constituted a common law nuisance. The court stated:

[T]here was no issue of a nuisance in the common law sense; it was a question of whether the ordinance had been violated. The right to pass ordinances in references to matters of police presupposes that there may be conditions which would not constitute a common law nuisance, but which are, nevertheless, inconsistent with the rights of individuals and the public and the test of an ordinance is not whether there is, in fact, a nuisance, but whether the ordinance is reasonable. If it were necessary to establish the fact of a nuisance to convict one of a violation of an ordinance, then there would be no need of the ordinance, for the maintenance of a nuisance is unlawful at all times, and may be reached without the aid of municipal ordinances.

Id. at 914. But see Los Angeles Air Pollution Control District, Rules and Regs., Rule 5 (1971), which prohibits the discharge of air contaminants "which cause injury, detriment, nuisance or annoyance" or "which endanger the comfort, repose, health or safety."

¹¹⁰ Interview with Alfred Pieratti, former Executive Director of Engineering and Enforcement of the New York City Department of Air Resources, April 12, 1971; Interviews with Herbert Wortreich, *supra* note 73. At the time of the first Wortreich interview on September 13, 1968, 50% of air pollution complaints in New Jersey concerned odors.

¹¹¹ Experiences of some of New York's counties demonstrate this point: Westchester County: of 243 violations cited, 149 were for violations of the "nuisance" regulation, 54 for smoke and 30 for open burning; Suffolk County: of 1,059 violations cited, 159 for "nuisance," 650 for open burning and 250 for smoke; Rockland County: of 137 violations cited, 75 for "nuisance," 40 for open burning, 22 for smoke; cf. Nassau County: of 2,590 violations cited, 500 for "nuisance," 155 for open burning, 600 for smoke, but 1,335 for vehicle emissions. Data compiled from Local Air Pollution Control Agency Information Forms filed with the EPA for 1970 grant period.

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harmful in themselves but which become harmful in combination with other pollutants.¹¹² The more broadly and open-endedly this provision is drafted, the more usefulness it may have for the enforcing agency.

The equivalent provision proposed by the federal model regulations prohibits emissions "from a building or equipment in such a manner or amount as to cause a nuisance or to violate any regulation."¹¹³ In contrast, New York City's law prohibits emission which "may cause detriment to the health, safety, welfare or comfort of any person . . ."¹¹⁴ The scope of the proposed model regulation was thus restricted to the boundaries of a common law nuisance or to acts already prohibited by the regulations, and accordingly was deleted from the adopted regulations.¹¹⁵ Since the maintenance of a nuisance is unlawful, the sole purpose of the proposed regulation appeared to be to empower the air pollution control agency to abate nuisances. This section should be broadly drafted, as New York City's was, and should not be drafted to be confined to or confused with common law nuisance.

F. Sulfur Emissions

Beginning about 1964, the federal government, with local cooperation, albeit sometimes reluctant, became involved in a major drive to control the emission of sulfur.¹¹⁶ The affected cities and states were those whose air contained dangerous levels of sulfur dioxide and suspended particulates.¹¹⁷ These pollutants in combination were known to have caused the death of thousands during the London air pollu-

¹¹² See, e.g., New York City Admin. Code ch. 57, § 1403.2-9.01 (Supp. 1971).

¹¹³ 36 Fed. Reg. 6692 (1971).

¹¹⁴ New York City Admin. Code ch. 57, § 1403.2-9.01 (Supp. 1971).

¹¹⁵ 36 Fed. Reg. 22406 (1971).

¹¹⁶ At about that time HEW began preparing and making available the information necessary to enact meaningful sulfur control limitations (see, e.g., Letters from Robert A. Low, New York City Councilman, to Senator Maurice Newberger, June 22, 1964, and from V.G. MacKenzie, Chief, Division of Air Pollution, to Senator Newberger, August 8, 1964) and encouraging the adoption by the New York City Department of Air Pollution Control of the nation's first regulation limiting the sulfur content of fuel. (The author was director at that time of the project to revise the New York City Air Pollution Code under an HEW grant to the Columbia University Legislative Drafting Research Fund.)

¹¹⁷ New York City experienced a serious air pollution incident on October 20, 1963, when sulfur dioxide and particulates reached dangerous levels. Greenburg, *Air Pollution Episode in New York City in 1963*, Address Before 58th Annual Meeting of the Air Pollution Association, Toronto, Canada, June 20-24, 1965. An earlier incident in 1953 had received little attention. Greenburg, *Report of an Air Pollution Incident in New York City*, November, 1953, 77 *Public Health Report* 7 (1962). The most well-known episode occurred in 1966 during the Thanksgiving holidays and affected most of the eastern United States. Researchers in New York City found an increase of 24 per day in the death rate from November 24 through 30, 1966. The HEW Public Health Service has documented the incident in a booklet. Fensterstock & Fankhauser, *Thanksgiving 1966 Air Pollution Episode in the Eastern United States*, NAPCA Publication No. AP-45 (1968).

tion episodes of 1952, 1953 and 1962.¹¹⁸ In metropolitan New York and New Jersey, the principal source of sulfur dioxide is from the burning of fuel for space heating and electrical power.¹¹⁹ New York City,¹²⁰ New Jersey¹²¹ and New York State¹²² successively enacted laws to limit stringently the content of sulfur in fuel sold, bought or used within the enacting jurisdiction.¹²³

An alternative method of restricting the emission of sulfur from large boilers would be to require the sulfur dioxide to be removed from the flue gases.¹²⁴ However, in the metropolitan area, the federal government urged the enactment only of restrictions on the sulfur content of fuel. The flue-control equipment then available could be used only in some electrical utility and industrial boilers, and moreover the equipment was neither very efficient nor economical.¹²⁵ Thus neither

¹¹⁸ Fensterstock & Fankhauser, *supra* note 117, at 1: "Excess deaths over normal expectancy ranged from 17 in Donora (Pennsylvania, 1948 incident) to 4,000 in the 1952 London smog." See also Cassell, *The Health Effects of Air Pollution and Their Implications for Control*, 33 *Law & Contemp. Prob.* 197 (1968).

¹¹⁹ In New York City the estimated emission of sulfur dioxide by source in 1970 was (in tons and percent per annum): residential and commercial space heating—190,200 (50%); power plants—160,000 (42%); transportation—20,400 (5%); industrial—6,860 (2%); and incinerators—2,100 (0.5%). Bureau of Technical Service, New York City Department of Air Pollution Control, *Emission Inventory Summary* (1970). In metropolitan New Jersey (the nine northern counties), the estimated emission of sulfur dioxide by source in 1970 was (in percentages): power plants—45%; commercial and industrial burning of fuel (mixed uses including space heating)—27%; residential space heating—12%; industrial processes—9%; transportation—6%; and incinerators—1%. Conversation with Paul Arbesman, *supra* note 84.

¹²⁰ New York City Air Pollution Control Code § 13.03 (1964), as amended, New York City Admin. Code ch. 41, § 893.1.0 (1971), as amended, New York City Admin. Code ch. 57, § 1403.2-13.03 (Supp. 1971).

¹²¹ N.J. Air Pollution Control Code ch. 8 (sulfur from industrial sources) (1967); ch. 10 (sulfur in fuels) (undated); ch. 10A (sulfur dioxide from coal combustion) (1968); ch. 13, § 4 (air quality standard for sulfur dioxide) (1969).

¹²² 10 N.Y. Codes, Rules & Regs. § 200 (fuel composition and use—New York metropolitan area) (1968), § 201 (fuel composition and use for heat or power generators) (1969).

¹²³ New York State's present law applies only to New York City, Nassau and Westchester Counties. Its applicability is limited to fuel buyers and users, and not to sellers. A proposed amendment enlarges the geographic area covered to include, with specified limitations, Suffolk County, and expands the prohibition to include sellers. State Department of Environmental Conservation, *Proposed amendments to 10 N.Y. Codes, Rules & Regs.* § 200.3, § 200.4 and § 200.5(f).

¹²⁴ Technical Comm. of the Nat'l Soc'y for Clean Air, *Sulfur Dioxide: An Air Pollutant*, 16-17 (Great Britain, undated), issued at the meeting of the Clean Air Society (Oct. 1971). See also 36 *Fed. Reg.* 22407 (1971).

¹²⁵ Technical Comm. of the Nat'l Soc'y for Clean Air, *supra* note 124, at 17. It is therein stated:

Despite much attention and research over many years, there is still no solution that could generally be adopted for boiler plants, although sulfur recovery from some smelter gases is practicable The only full-scale commercial installations in the world (as distinct from experimental or pilot-scale plans) are the water washing system for removing sulfur dioxide from the boiler flue-gases at the Battersea and Barking power stations in London. For reasons which will be

the federal government nor the affected local and state jurisdiction had any choice at the time as to the means of controlling sulfur, and action had to be taken to prevent a public health disaster similar to the three London episodes. Under these circumstances, effective legislation was enacted and enforced. The federal recommendation was effective. The sulfur fuel restrictions are the most successful pollution provisions enacted by New York City and New Jersey in terms of measurably improved air quality.¹²⁶ Of course, substitution of low or non-sulfur (gas) fuels has had a significant impact on fuel supply patterns. This was inevitable since the existing fuel supply and use patterns were responsible for the emission of sulfur.

The federal proposed model regulations contain two provisions relating to the sulfur content of fuel,¹²⁷ the substance of which has been retained in the adopted regulations.¹²⁸ Both provisions avoid federal responsibility for affecting fuel supply patterns. This is unfortunate in light of the documented success of the laws of New York City, New York State and New Jersey, and the federal government's active role in bringing about their passage. The first provision in the adopted federal regulations, like New York's and New Jersey's, restricts the sulfur content of fuel, but a caveat follows: "This language is intended for application to small area sources, where fuel substitution is the only practical control method."¹²⁹ The second provision applies to "large power and steam generating boilers, where installation of fuel gas cleaning systems is feasible,"¹³⁰ and recommends limiting the emission of sulfur rather than restricting the sulfur content

indicated, it is unlikely that the processes used in these stations could be adopted more widely One of the main difficulties involved is the enormous volume of gas that has to be treated Another important factor is that the washing of flue gases . . . [cools the gases] and the chimneys emit a wet plume the density of which is always low and can sometimes be negative so that the plume tends to sink to ground level.

The foregoing view is more pessimistic than that of the EPA. See 36 Fed. Reg. 22407 (1971).

¹²⁶ Monitoring as well as emissions data indicate that there is substantially less sulfur dioxide in the air. It is reported that in the past three years sulfur dioxide was reduced by 50%. N.Y. Times, Feb. 9, 1972, at 20, col. 1. The New York City monitoring station with the highest annual average for sulfur dioxide in 1969 was .113 ppm; in 1970, it was .101 ppm; and in 1971, it was .063 ppm, while the worst station in 1961 had an annual average of .96 ppm. R. Rickles & E. Ferrand, Data Reports, Aerometric Network, N.Y.C. Dep't of Air Resources, Fiscal 1969-70 and 1970-71. Federal air quality standards for sulfur dioxide require .03 ppm annual average, so New York City still falls short of federal standards. 36 Fed. Reg. 22384 (1971). See Blade & Ferrand, Sulfur Dioxide Air Pollution in New York City: Statistical Analysis of Twelve Years, 19 A.P.C.A. Journal 873 (1969).

¹²⁷ 36 Fed. Reg. 6692 (1971).

¹²⁸ Id. at 22407.

¹²⁹ Id. at 22401.

¹³⁰ Id.

of the fuel. An explanatory footnote states that present technology will allow eighty-percent removal of sulfur oxides from combustion gases of most existing large industrial and electric power boilers.¹⁸¹ A 1971 amendment to the New York City Air Pollution Control Code now prescribes sulfur emission standards for boilers with a capacity of 500,000,000 BTU's per hour or more, *i.e.*, Consolidated Edison boilers, giving the utility the options of using low sulfur fuel or of removing the sulfur from the stacks.¹⁸²

Standards are recommended for small area sources in a qualified footnote of the adopted regulations;¹⁸³ standards are not recommended for electrical utility boilers.¹⁸⁴ This omission is significant. These regulations are the only ones in the proposed model and adopted regulations not containing a recommended standard. An explanatory note states that nationally applicable standards are not possible: "Availability of low sulfur fuels varies from one area to another. In some areas, severe restrictions on the sulfur content of fuels could have a significant impact on fuel-supply patterns."¹⁸⁵

The EPA thus hedges on the vital issue of national fuel-supply and use patterns, passing the responsibility to the states and localities. The most favorable interpretation of this position is that the EPA prefers the behind-the-scenes role it played in the New York-New Jersey metropolitan area, when New York City took the lead by enacting legislation which altered local fuel-supply patterns and stimulated the development of technology for removing sulfur from the oil at the refinery. However, the federal regulations fail to make any provision for federal prodding or support of local action, and so suggest a less favorable interpretation of the EPA's position: that the agency is dodging its responsibilities in leading the battle for the initiation of an overall federal fuel policy designed to put the right fuels—low sulfur oil and natural gas—into the heavily polluted metropolitan areas. In any case, the regulations place the onus of controlling sulfur emissions on state and local governments. Draftsmen will find little guidance in the federal model regulations and should look to the fuel

¹⁸¹ *Id.* at 22407.

¹⁸² New York City Admin. Code ch. 57, § 1403.2-9.07 (Supp. 1971).

¹⁸³ These standards provide:

In many areas of the country, regulations can be written requiring the following fuel characteristics: distillate oil—0.1 percent sulfur; residual oil—0.3 percent sulfur; bituminous coal—0.7 percent sulfur. Because residual oil generally is obtained from overseas sources, its use is necessarily restricted to areas accessible to water-borne transportation. There are limited tonnages of 0.7 percent sulfur coal available at the present time but only in certain areas of the country.

¹⁸⁴ 36 Fed. Reg. 22407 n.1 (1971).

¹⁸⁵ *Id.* at 22457.

¹⁸⁶ *Id.*

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sulfur content restrictions of the New York City, New York State and New Jersey.

In heavy industrial or paper pulp areas, where there is little fuel burning or where natural gas is used as fuel, sulfur emissions may be principally or entirely caused by industrial processes. In addition to, or in lieu of, imposing fuel limitations, some regulations limit the emission of sulfur from equipment other than boilers or other fuel-burning equipment. Such regulations may be applicable to industrial sources generally,¹³⁶ refineries,¹³⁷ sulfuric acid plants,¹³⁸ sulfur recovery plants,¹³⁹ non-ferrous smelters¹⁴⁰ or sulfite pulp mills.¹⁴¹ Sulfur emission restrictions with explicit and precise standards are recommended by the federal model regulations.¹⁴²

G. Other Air Contaminant Emissions

The federal model regulations include a substantial number of provisions designed to control the emission of hydrocarbons, carbon monoxide and nitrogen oxides from stationary sources.¹⁴³ The provisions contain equipment and activity regulations as well as emission standards. Comparable provisions are not found in the air pollution control laws of the New York-New Jersey metropolitan area, with the exception of New York City's new restrictions on nitrogen oxide emissions,¹⁴⁴ and the sale or use of architectural coating containing a photo-chemically reactive solvent.¹⁴⁵ Since the restrictions are new, no general comment can be made yet concerning local experience with these provisions.

IV. BANNING MATERIALS, EQUIPMENT OR ACTIVITIES

As a legislative technique, the banning of polluting materials, equipment or activities has two principal advantages: first, the pollution source is totally eliminated, and, second, the enforcement burden is substantially less than where the law allows conditional use upon compliance with legal standards and requirements. The first advantage is particularly important with respect to a highly toxic material such as asbestos. The second advantage is important where the polluting

¹³⁶ See, e.g., N.J. Air Pollution Control Code ch. 8 (1967).

¹³⁷ See, e.g., 36 Fed. Reg. 22407 (1971).

¹³⁸ See, e.g., *id.*

¹³⁹ See, e.g., *id.*

¹⁴⁰ See, e.g., *id.*

¹⁴¹ See, e.g., *id.*

¹⁴² *Id.*

¹⁴³ *Id.*

¹⁴⁴ New York City Admin. Code ch. 57, § 1403.2-9.13 (Supp. 1971).

¹⁴⁵ New York City Admin. Code ch. 57, § 1403.2-9.15 (Supp. 1971).

sources are numerous and enforcement resources are limited. If enforcement measures are a limiting factor, then bypassing the need for maintaining a large inspectorial bureaucracy whose purpose is to monitor the pollutor's day-by-day activities may mean the difference between an effective and an ineffective law.

The ban may encompass the purchase, sale, or use of the polluting equipment, material, or activity; or it may simply prohibit the purchase or sale of the material or fuel. When, however, the prohibition is limited to an activity or the *use* of materials or equipment without encompassing the *purchase* or *sale* of materials or equipment, the advantages of this legislative technique will not be felt if repeated spot-checking of emission sources is the only means of obtaining compliance with the law. Where the prohibition encompasses purchase and sale, as it usually does, then enforcement will be economical and efficient, even where the emission sources are numerous, because the agency can exercise its control at the relatively few points of purchase and sale or storage. Prohibition of purchase or sale has an additional advantage: a commercial violation is far easier to prove than a use (or emission) violation. The occurrence of the former is generally regular and discrete, while that of the latter is generally irregular and transitory. More importantly, the commission of a commercial transaction is likely to be a recorded event, the proof of which can be established by documentary evidence, while proof of a prohibited or restricted use depends upon eyewitness testimony of an agency inspector.

Although prohibition of purchase or sale is a generally effective legislative technique, problems may arise in the implementation and enforcement of the legislation which will undermine its effectiveness. The legislation will be widely defied if reasonably convenient and economical alternatives are not simultaneously made available to enable people to conduct activities which, aside from their pollution potential, are socially acceptable or necessary (e.g., leaf or other waste disposal, space heating, fireproofing of structural beams in high rise construction, transportation, etc.). In addition, the legislation will not be enforced if it is in direct conflict with other governmental policies and commitments. The enforcing jurisdiction will favor that interest having more immediate urgency or influence.

The first two prohibitions discussed in this section ban or restrict an activity, and their enforcement has created inspectorial problems similar to those encountered in the enforcement of standard-setting legislation. The other sections concern legislation banning or restricting material or fuel by prohibiting their purchase or sale.

A. Open Burning

The prohibition of open burning is the oldest law in the United States which bans an activity for the purpose of preventing air pollution. This law is found in nearly every jurisdiction having air pollution control legislation including, in the metropolitan area, New York State,¹⁴⁶ New York City,¹⁴⁷ New Jersey,¹⁴⁸ Nassau County,¹⁴⁹ and Suffolk County,¹⁵⁰ and is recommended by the proposed, but not the adopted, model federal regulations.¹⁵¹ The model provision is drafted in the traditional manner: "No person shall ignite, cause to be ignited, permit to be ignited, or maintain any open fire except as follows . . ."¹⁵² The exceptions include recreational fires as well as fires used to control fires or pests or to train personnel.¹⁵³

The kinds of open fires which are the principal cause of air pollution are: leaf burning (unfortunately, meteorological inversions are more common during the fall); dump fires, including garbage dumps, auto dumps, scrapyards, locations, and the open burning of debris on waterways such as New York Harbor; construction site fires (used in the winter for warmth, and year-around for waste disposal); and land-clearing fires. In the metropolitan area, success in controlling these four types of open fires has been mixed. The number of potential violators is very high, and where the burning is part of a routine disposal system for which alternative means either are unavailable or are comparatively inconvenient and expensive, the chances of success are poor. For example, leaf burning in parts of Westchester County and construction site fires in New York City continue unabated and, apparently, unaffected by the law.¹⁵⁴ Dump fires have been sought to be controlled in New Jersey through the sanitary licensing laws rather than the open burning ban.¹⁵⁵ The latter requires that an inspector be

¹⁴⁶ 10 N.Y. Codes, Rules & Regs. § 190 (1971).

¹⁴⁷ New York Admin. Control Code ch. 57, § 1403.2-9.17 (Supp. 1971).

¹⁴⁸ N.J. Air Pollution Control Code ch. 2 (1971).

¹⁴⁹ Nassau County, N.Y., Admin. Code tit. D, ch. IX, § 9-21.26 (1971).

¹⁵⁰ Suffolk County, N.Y., Sanitary Code art. 10, § 14 (1971).

¹⁵¹ 36 Fed. Reg. 6691 (1971). This language was deleted in the adopted regulations. *Id.* at 22406.

¹⁵² *Id.* at 6691.

¹⁵³ *Id.*

¹⁵⁴ Interviews with Calvin E. Weber, Director of Division of Environmental Sanitation, Westchester County Department of Health (in charge of county air pollution control program), June 27, 1969 and April 14, 1972; interview with Alfred Pieratti, former Executive Director of Engineering and Enforcement of the New York City Department of Air Resources, April 12, 1971.

¹⁵⁵ Interview with Theodore A. Schwartz, Esq., former N.J. Deputy Attorney General in charge of air pollution control, July 23, 1968. See also N.J. Sanitary Code ch. 8 (1971).

at the dump at the time of the fire in order to establish a violation. In addition, to convict under the open burning ban, the agency must prove that the owner caused or allowed the fire.¹⁵⁶ This is particularly difficult because dump fires in New Jersey are frequently caused by spontaneous internal combustion, which is not considered a violation of the open burning ban.¹⁵⁷ Land-clearing fires apparently continue more or less unabated, and will obviously not be controlled by a blanket prohibition relying on policing by air pollution inspectors. After many years of federal prodding, open burning in the New York Harbor was halted by the establishment of an alternate inexpensive disposal system.

Before significant progress can be made in open burning restrictions, inexpensive alternatives must be provided. Technological development and action should be undertaken before blanket bans are imposed. Then the open burning prohibitions should be realistically geared to the availability of alternatives. Otherwise, the inevitable result is the gap between the letter of the laws and their enforcement, exemplified by the New York City, Westchester County and New Jersey experiences.

A related, and equally common, provision prohibits night-time incinerator burning. The provision was recommended by the proposed model regulations but was later omitted.¹⁵⁸ From an enforcement viewpoint, this provision is the epitome of legislative unreality. Inspectors are not employed during the prohibited hours. Therefore no one is on duty to catch the violators (all-night mechanical scanners could be used, but are not). Of all our laws, this one most sharply reflects the gap between legislative visions of control and the realities of law enforcement.

*B. Use of Soft Coal for Space Heating Prohibited;
Sale, Purchase, and Use of High Sulfur Fuel Prohibited*

A pragmatic view of enforcement is not the only criterion for measuring the probable success of a law. In contrast to the night-time incinerator provisions, the New York City laws¹⁵⁹ prohibiting the use of soft coal for space heating and prohibiting the purchase, sale, or use of high sulfur fuel (oil and coal)¹⁶⁰ are both realistically enforceable

¹⁵⁶ N.J. Air Pollution Control Code ch. 2, § 1.1 (1971).

¹⁵⁷ Interview with Theodore A. Schwartz, *supra* note 155. The provision banning burning reads: "No person shall cause, suffer, allow or permit the disposal of rubbish or garbage or trade waste or buildings or structures by open burning." N.J. Air Pollution Control Code ch. 2, § 1.1 (1971).

¹⁵⁸ 36 Fed. Reg. 6691 (1971). The language was deleted in the adopted regulations. *Id.* at 22406.

¹⁵⁹ New York City Admin. Code ch. 57, § 1403.2-13.09 (Supp. 1971).

¹⁶⁰ New York City Admin. Code ch. 57, § 1403.2-13.03 (Supp. 1971).

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although in some cases social needs may impede enforcement. The sources to be routinely inspected—the storage facilities of sellers of coal and other high sulfur fuel—are few in number, and the nature of the inspections are relatively simple and inexpensive.¹⁶¹ In both cases, however, the initial job of convincing industry to comply was not an easy one.¹⁶² Moreover, in the case of the soft-coal space heating ban, a social and political dilemma quickly became apparent: soft coal is largely used for space heating in older marginal housing. Hence the enforcing governmental entity viewed the foreseeable economic effects of forced fuel and equipment changes as potentially detrimental to the City's poorer inhabitants, and the soft coal ban was never enforced. Instead, the City made an agreement with the retail coal sellers to purchase from their wholesalers only soft coal containing a lawful sulfur content.¹⁶³ Then, five years after its enactment, the outright-ban law was repealed in favor of extensive provisions regulating the use of soft coal for space heating and prohibiting the expansion of its use.¹⁶⁴ As has been seen, such a legislative technique—regulating the manner of conducting a polluting activity—is unenforceable without substantial inspectorial resources. Effective regulation would require measures such as subsidization of lower economic classes adversely affected. Since New York City lacks such resources, it is apparent that the law will not be enforced. In short, the prohibition of soft-coal use for space heating has revealed a social dilemma involving a weighing of social priorities that often is characteristic of environmental legislation. In contrast, in the case of the high sulfur fuel ban, the City's varying and sometimes competing commitments and responsibilities did not conflict. Once industry agreed to comply and business and production systems adjusted to the new law, compliance became routine. Thus, prohibition of purchase and sale, as well as use,

¹⁶¹ In the case of soft coal use, the violator is the user, not the purchaser or seller; however, the law provided for a total ban of the coal by 1968, except for the purpose of generating steam. Informal inspection of wholesale coal storage facilities might have been arranged. Enforcement would undoubtedly have been facilitated by banning sales as well as use.

¹⁶² In the case of soft coal, action was instituted for an injunction against the enforcement of New York City Admin. Code ch. 41, § 893-2.0 (1971), as amended, New York City Admin. Code ch. 57, § 1403.2-13.09 (Supp. 1971), on the ground of unconstitutionality. See, e.g., *Plymouth Rock Fuel Corp. v. City of New York*, Index No. 00277 (N.Y.C. Super. Ct., Jan. 17, 1969).

¹⁶³ Interview with Alfred Pieratti, *supra* note 154. There may be 600 to 1,000 residential users in the City, and its use "will naturally peter out. . . . [B]etween 1966 and '71 an estimated 70,000 tons of soft coal was replaced by gas." *Id.* Soft coal is also used by the New York City Board of Education, Police and Fire Departments in their older buildings, and by Consolidated Edison. New Jersey also regulates the sulfur content of coal. N.J. Air Pollution Control Code ch. 10A, § 2 (1971).

¹⁶⁴ New York City Admin. Code ch. 57, §§ 1403.2-13.09(c), -5.05(b)(4) (Supp. 1971).

of polluting materials has been empirically demonstrated as an effective enforcement measure.

C. Asbestos Spraying Prohibited

In December, 1971, the EPA published proposed federal regulations establishing emission standards for asbestos.¹⁶⁵ In an urban environment lacking asbestos milling, manufacturing, or fabricating industries, the principal source of asbestos pollution is the application of asbestos fire-proofing and insulation by spraying.¹⁶⁶ In older cities engaged in substantial building demolition activities, such as New York City, the quantity of demolition dust containing asbestos is expected to increase markedly as newer buildings are torn down.¹⁶⁷ The proposed federal standard for fire-proofing and insulation applications is to "ban . . . the spray application of products that contain asbestos" because "efforts to control emissions by the use of containment and good housekeeping practices have repeatedly failed Asbestos-free substitute materials are available for both sprayed asbestos fire-proofing and high-temperature asbestos insulation."¹⁶⁸

In New York City, the spraying of asbestos "in or upon a building or other structure during its construction, alteration or repair," is prohibited as of February, 1972, "except if permitted by a variance"¹⁶⁹ New York State is considering a similar provision.¹⁷⁰ The New York City law is the successful result of several years of fighting, in court and out, with the building trades, following their considerable procrastination and laxity in complying with agency operating procedures designed to prevent the asbestos from becoming

¹⁶⁵ 36 Fed. Reg. 23242 (1971). See also 29 C.F.R. § 1910 (1970), as amended, 36 Fed. Reg. 23207 (1971).

¹⁶⁶ See, e.g., *The New Yorker*, Oct. 23, 1971, at 148-49, where it is stated:

The first use in the United States of sprayed mineral fibre containing asbestos as a fire-proofing agent occurred in 1958 in the erection of the Chase Manhattan Bank, here in New York. . . . [L]ast year asbestos fire-proofing was used in considerably more than half the large multi-story office buildings constructed in the United States. The process . . . is an extremely wasteful one. . . . [A]bout twenty five percent of the material fails to adhere. . . . [T]hree million pounds . . . used in 1970 alone entered the atmosphere immediately

¹⁶⁷ Interview with Harold Romer, Assistant Commissioner, New York City Air Resources Dep't, Jan. 25, 1971.

¹⁶⁸ EPA Office of Air Programs Publication APTD-6753, Background Information—Proposed National Emission Standards for Haphazard Air Pollutants: Asbestos, Beryllium and Mercury 7 (1971). See 36 Fed. Reg. 23242 (1971).

¹⁶⁹ New York City Admin. Code ch. 57, § 1403.2-9.11(b) (Supp. 1971).

¹⁷⁰ State Department of Environmental Conservation, Proposed 10 N.Y. Codes, Rules & Regs. § 196 (1971).

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airborne.¹⁷¹ Their uncooperative response harmed the construction workers and may have harmed the general public.¹⁷²

The new law is only a qualified success, however, because it reflects what may be a serious political and economic compromise. Not only the use of asbestos but also the spraying into the open air of *any* fire-proofing material constitutes a hazard.¹⁷³ New York City law contains extensive protective housekeeping regulations that would reduce such hazards, including the use of tarpaulins and vacuuming,¹⁷⁴ but they cannot be effectively enforced, and the protections have not been widely used. No one knows with reasonable certainty whether the emission of the new asbestos substitutes will be harmful or not. The substitutes have been laboratory-tested but have never been widely used. The construction industry was, however, able to persuade the New York City Council and apparently the federal government, that it was necessary to allow the use of spraying as a technique of application; the older, and safe method of encasing the beams in concrete was too expensive.¹⁷⁵ Other non-spraying methods of applying fire-proofing have now been developed.¹⁷⁶ With alternative methods of application available, the law should prohibit the spraying of fire-proofing materials as an unnecessary public health risk.

D. Sale, Purchase, or Use of Leaded Gasoline

Beginning on November 1, 1971, leaded gasoline was supposed to be phased out of use in New York City.¹⁷⁷ The legislative goal for ex-

¹⁷¹ Interviews with Neil Fabricant, Esq., former General Counsel, New York City Environmental Protection Administration, November 9, 1970, and with Douglas J. Kramer, Esq., former Assistant to General Counsel Assigned to Air Resources, April 9, 1971. See N.Y.L.J., Nov. 18, 1971, at 19, discussing *La Monica v. Kretchmer*, a New York City Superior Court case denying a preliminary injunction to enjoin the City Environmental Protection Administration from enforcing criminal proceedings and administrative sealing on the grounds that the Air Pollution Control Code and the Air Pollution Control Commissioner's orders are unconstitutional and outside his authority.

¹⁷² Statement of Dr. Irving J. Selikoff, Chief, Division of Environmental Medicine, City University Mount Sinai School of Medicine, Executive Session, New York City Council, Committee on Environmental Protection, February 25, 1971.

¹⁷³ *Id.*

¹⁷⁴ New York City Admin. Code ch. 57, § 1403.2-9.11(e) (Supp. 1971).

¹⁷⁵ In 1961, it was found that spraying fire-retarding asbestos on supporting beams instead of encasing them in concrete cut costs by about 20%. In 1972, increased costs for substitute spray materials, available or scheduled for introduction in the near future, range from zero to a maximum of 15%. EPA, Office of Air Programs Publication APTD-6753, *supra* note 168, at 8.

¹⁷⁶ P. Brodeur, *Asbestos and Enzymes* 144 (1972).

¹⁷⁷ New York City Admin. Code ch. 57, § 1403.2-2.13.11 (Supp. 1971). For excellent studies on lead in the air, see State of Illinois Institute for Environmental Quality, *A Study of Environmental Pollution by Lead* (1971); L. Tepper, *Seven-City Study of Air and Population Lead Levels*, Interim Report (1971) (available from the EPA). There is now

clusive use of non-leaded gasoline is January 1, 1974.¹⁷⁸ The EPA has set a date of January 1, 1978 for the use of low leaded gasoline.¹⁷⁹ Compliance with New York City's law has been mixed.¹⁸⁰ However, when the EPA adopts its phased schedule restricting lead in gasoline, the federal schedule and standards will preempt state and local regulations, and enforcement will be in the hands of the EPA "unless State prohibition or control is identical to the prohibition or control prescribed by the Administrator."¹⁸¹

V. EQUIPMENT OR OPERATOR LICENSING AND OTHER EQUIPMENT STANDARDS

A. *Equipment Licensing*

Of the three widely used air pollution control legislative techniques—emission standards, banning, and licensing—it appears that licensing is the technique most favored by draftsmen. Licensing, like emission standard legislation, allows the polluter freedom to continue to use the polluting materials and equipment, provided the polluter complies with initial license requirements. A licensing program is designed to be preventive, and hence is similar in intended effect to laws banning a type of fuel, material, or equipment. Before operating the equipment the potential licensee must meet legislative standards, and the burden is upon him to appear before and satisfy the licensing agency of compliance with the law before a license will be issued.

A licensing program can greatly simplify prosecutions. A violation for failure to obtain a license is easy to prove, since it is a single discrete omission and the burden is on the polluter to produce the license record. On the other hand, showing a violation for failure to comply with the conditions of a license may involve agency field investigation and eyewitness testimony. However, if the condition can be structured to require the licensee to file reports concerning the status of, or the emission from, the equipment, violation of the condition would be as easy to prove as the failure to obtain a license.

Licensing, then, is a very useful regulatory technique; however, problems can arise in an air pollution control licensing program, most of which have been encountered in New York City's extensive experience with such a program. These problems include the need for a

the possibility that lead-free gasoline may emit cadmium, a toxic metal. *Wall Street Journal*, Feb. 7, 1972, at 7, col. 5.

¹⁷⁸ New York City Admin. Code ch. 57, § 1403.2-2.13.11(a)(4) (Supp. 1971).

¹⁷⁹ 38 Fed. Reg. 1254-61 (1973).

¹⁸⁰ Requests for variances from several oil companies have not yet been decided upon. *N.Y. Times*, Nov. 10, 1971, at 41, col. 3.

¹⁸¹ 42 U.S.C. § 1857f-6c(c)(4)(A) (1970).

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substantial bureaucratic staff; the practical results of enforcing by means of license withdrawal or suspension; the need to leave room for technical innovation even though the licensing program will necessarily develop a bureaucratic tendency to favor equipment specification standards; and the problems encountered in licensing equipment designed and acquired in different time periods—new equipment in new plants, altered equipment in existing plants, and old equipment in existing plants.

The success of any sort of licensing system is dependent principally upon adequate program funding rather than statutory verbiage. Substantial funding is needed to support the engineering, inspection and clerical programs essential to the success of a licensing program. Applications must be expeditiously processed to encourage voluntary compliance, the equipment must be checked by engineers, and a workable and efficient system must be designed to insure that equipment installations and alterations come routinely to the agency's attention. Without such programs, a licensing system is, as is shown by New York City's experience, easily ignored.¹⁸²

It should also be noted that a licensing program does not preclude the need for a substantial inspectorial staff to spot-check equipment regularly.¹⁸³ A licensee is responsible for operating and maintaining the equipment so as not to exceed legislative pollution standards. Even good equipment has a capability to pollute and hence must be properly operated and maintained to restrict pollutant emissions.¹⁸⁴ The enforcement agency therefore must assume the burden of policing the polluter's use of materials and equipment *after* the license is issued. Thus effective agency control must occur at two operational levels—one at the agency before licensing, and the other in the field at the source of emission. Unfortunately, the expense of maintaining a sufficient staff for these multiple operations may not be considered at the time the legislation is enacted. Perhaps the legislature hopes that money can be found once a program is under way, or that some kind of licensing program is better than none at all. An inadequately funded program, however, is far worse than no program at all, because it gives

¹⁸² Interview with Alfred Pieratti, *supra* note 154. There is "no way to check on illegally installed incinerators (or other equipment), unless they happen to smoke. How do we know if someone puts in an incinerator unless they file for a permit?" Interview with Benjamin C. Radzka, former Director of Industrial Processes Task Force, New York City Bureau of Air Resources, April 21, 1971. Two months after licensing was required, it was found that 80% of the inspected industries had failed to obtain a license for their industrial equipment, boiler or incinerator.

¹⁸³ Conversations with New York City and New Jersey air pollution control personnel. See *Wall Street Journal*, Nov. 12, 1971, at 1, col. 8.

¹⁸⁴ See *Wall Street Journal*, Nov. 12, 1971, at 1, col. 8.

the misleading appearance of an active air pollution prevention program.

Since field operations are expensive to maintain, some licensing programs provide for the issuance of permits valid only for a specified term.¹⁸⁵ Other agencies issue permits which are valid indefinitely.¹⁸⁶ Periodic license renewal is the preferable technique because it brings the polluter to the agency, rather than vice versa, and insures that the equipment will be checked at least at the time of license renewal. However, if the clerical and engineering staff to administer such a program are not available, a renewable license program is another impractical and meaningless law. If the resources are available, a tradeoff occurs between a relatively costly program—the issuing of an indefinite permit, which requires inspectorial as well as engineering and clerical back-up—and a less expensive alternative, the issuing of a renewable permit which requires some engineering and clerical back-up, but fewer spot-check field inspections.

Another major problem inherent in an air pollution control licensing program concerns enforcement. In practical fact, an air pollution licensing violation is frequently unenforceable or very difficult to enforce. The usual method of enforcement is to revoke or suspend the license—a simple and effective technique. However, illegal air-polluting equipment is rarely shut down because to do so would create undesirable social consequences involving housing, employment or electrical power.¹⁸⁷ Consequently licensing is less effective as a legislative technique for controlling air pollution than it is in enforcing other laws where the results of a temporary or permanent shut-down of a licensee in violation are less socially severe or less politically sensitive.

A common criticism of licensing programs is that they tend to stifle innovation by imposing equipment design standards rather than performance standards; this presents a problem to be considered before drafting the legislation embodying a licensing program.¹⁸⁸ Specification standards tend to be bureaucratically favored because they appear easier to administer, they insure maximum control by the

¹⁸⁵ See, e.g., New York City Admin. Code ch. 57, § 1403.2-5.05(d) (Supp. 1971).

¹⁸⁶ See, e.g., 36 Fed. Reg. 6688 (1971); 10 N.Y. Codes, Rules & Regs. § 176.5(d) (1969); Los Angeles County Air Pollution Control District Rules & Regs. Rule 10 (1969).

¹⁸⁷ Small businesses are the most likely to be shut down. They often cannot afford the control equipment, and from the standpoint of the enforcing jurisdiction, the economic and social consequences of a shutdown are not dramatic. The impact of stringent control regulations upon small business is an important, and, as yet unexamined national economic problem. Interviews with Theodore A. Schwartz, Esq., former N.J. Deputy Attorney General in charge of air pollution control, July 10, 1968, and May 26, 1969.

¹⁸⁸ For an excellent discussion of performance and specification standards, and the permit system of the San Francisco Bay area, see Walker, *Enforcement of Performance Requirements with Injunctive Procedure*, 70 *Ariz. L. Rev.* 81 (1968).

agency, and they avoid for the agency the embarrassing problem of refusing an operating permit after the equipment has been constructed in accordance with agency-approved plans.¹⁸⁰ On the other hand, specification standards are clearly disadvantageous in an area of developing technology, like air pollution control, where innovation is necessary and desirable. Additional disadvantages are the tendency of the engineering staff to be overcautious, since the agency is committed to the sufficiency of the design, and the substantial time consumed by the staff in the role they assume as unpaid consultants to the owner of the equipment.¹⁸⁰ Small equipment operators tend to prefer specification standards principally because of their lack of interest in design experimentation, while large operators, employing their own engineering staffs, prefer more flexible standards that allow for innovation. In addition, small operators probably obtain the greater benefit from consultation with agency engineers.

In order to permit some satisfaction of each of these competing and conflicting needs, legislation should be cast as *performance* standards whenever possible. The agency may then enact regulatory *specification* standards, allowing, as an alternative, the general statutory performance standard. It is the owner in this case who, having chosen between the alternative standards, takes the risk. Several examples of air pollution control performance standards are instructive and useful. The federal model regulations require new sources to be "in accordance with the latest available control technology so as to reduce emissions to a minimum."¹⁸¹ New York City's Air Pollution Control Code requires that "the equipment incorporate advances in the art of air pollution control developed for the kind and amount of air contaminant emitted by the applicant's equipment."¹⁸² New Jersey's Code contains this same wording.¹⁸³

A final problem generated by equipment licensing programs arises from the fact that equipment licensing regulations are generally applicable only to new or altered equipment. Their purpose is to prevent pollution from new sources by requiring the equipment to be designed and installed in a manner that the agency deems adequate to minimize the emission of pollutants. Such programs generally encounter little resistance from polluters because the equipment upgrading is required only if the polluter chooses to replace, alter, or install new equipment. Initial

¹⁸⁰ Id. at 86.

¹⁸⁰ Id.

¹⁸¹ 36 Fed. Reg. 6688 (1971).

¹⁸² New York City Admin. Code ch. 57, § 1403.2-5.11(a) (2) (Supp. 1971).

¹⁸³ N.J. Air Pollution Control Code ch. 9, § 4.1 (1971). In addition, New York City and New Jersey require that the equipment operate without violating any of the air pollution control laws.

decision-making, timing, and financial planning remain in private hands, and are not directly controlled or affected by the agency.

However, the law may also require the installation of specified equipment or control apparatus in old as well as new equipment of a certain type, such as incinerators, regardless of whether or not the older source had ever violated the air pollution control laws. New York City's¹⁹⁴ and Nassau County's¹⁹⁵ licensing laws include this kind of provision as well as regulations applicable to new and altered equipment, while New York State¹⁹⁶ and New Jersey¹⁹⁷ licensing laws regulate only new and altered equipment. The proposed federal model regulations also contained licensing provisions applicable to new and altered equipment,¹⁹⁸ as well as the requirement that all incinerators be upgraded to a multiple-chamber system—more effective in cutting pollution—or its equivalent.¹⁹⁹ The model permit system was deleted in the adopted regulations; however, the acting Administrator of the EPA stated, in connection with the adopted regulations, that "States still will be required to have authority to prevent construction, modification, or operation of sources."²⁰⁰ Since licensing remains the standard regulatory technique for preventing the construction, modification, and operation of air pollution sources, it will surely continue to be widely used.

It may be assumed that an air pollution control law is necessarily more effective if it encompasses the gamut of equipment licensing regulations. New York City's lengthy experiences in controlling air pollution through a wide range of licensing provisions is instructive in this respect. Since 1954, New York City has licensed new and modified on-site incinerators²⁰¹ and has required multiple burning chambers and other devices,²⁰² and since 1966 it has licensed all incinerators (new, old, on-site, and municipal) whose operators choose not to discontinue operation.²⁰³ Many of the city's on-site incinerators were built after

¹⁹⁴ New York City Admin. Code ch. 57, §§ 1403.2-4.01, -5.01, -5.31, -11.01 to -11.25 (Supp. 1971).

¹⁹⁵ Nassau County, N.Y., Admin. Code §§ 9-21.10 to .24, .50 to .60, .68 to .72 (1971).

¹⁹⁶ 10 N.Y. Codes, Rules & Regs. §§ 175-80, 192 (motor vehicles) (1971).

¹⁹⁷ N.J. Air Pollution Control Code ch. 9, ch. 11, § 2 (1971).

¹⁹⁸ 36 Fed. Reg. 6688 (1971).

¹⁹⁹ Id. at 6691.

²⁰⁰ Id. at 15486.

²⁰¹ New York City Admin. Code ch. 47, §§ 1072-3.0, 4.0 (1954); New York City Dep't of Air Pollution Control, Rules and Regulations Including Fee Schedules for the Issuance of Permits and Certificates in Conformance with Chapter 47 of the Administrative Code of the City of New York, §§ 2.1, 13.2 (May, 1954), as amended, City Record, Nov. 23, 1955 and Oct. 1, 1964.

²⁰² New York City Dep't of Air Pollution Control, Rules and Regulations Including Fee Schedules for the Issuance of Permits and Certificates in Conformance with Chapter 47 of the Administrative Code of the City of New York, §§ 13.13-13.5.1 (May, 1954).

²⁰³ New York City Admin. Code ch. 57, §§ 1403.2-4.01 to .05 (Supp. 1971).

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1951; on-site incinerators were required by law in multiple dwellings constructed after that date, presumably for the purpose of saving the city the expense of picking up and disposing of the garbage.²⁰⁴ New on-site incinerators were finally banned in 1966.²⁰⁵ Compliance figures show that as of August 1971, fifteen percent of the incinerators operated by the New York City Board of Education, Hospital Corporation, and Housing Authority were upgraded or discontinued in compliance with the 1966 law.²⁰⁶ As of January 1, 1972, about twenty-nine percent of privately operated incinerators were upgraded or discontinued.²⁰⁷ Air quality data show that after almost twenty years of licensing, on-site and municipal incinerators continue to be a major source of city²⁰⁸ and metropolitan²⁰⁹ air pollution.

In 1966, New York City also licensed all fuel burning equipment

²⁰⁴ Since October 1951, incinerators were required in all new multiple dwellings of four or more stories and occupied by more than 12 families. New York City Admin. Code ch. 26, § D26-3.11 (1957), as amended, Local L. 1955, No. 113. Since 1956, incinerators were also required in all new single room occupancy buildings. New York City Admin. Code ch. 26, § D26-3.7(3) (1956).

²⁰⁵ New York City Admin. Code ch. 41, § 893-3.0 (1971), as amended, New York City Admin. Code ch. 57, § 1403.2-4.03 (Supp. 1971). The ban, which was effective as of May 1968, does not, of course, apply to municipal incinerators. In contrast to New York City's unsuccessful attempts to regulate on-site incineration, Los Angeles County controlled pollution from incinerators more than ten years earlier, principally by banning single chamber on-site incinerators which were the principal means of waste disposal (there were 1.5 million backyard incinerators, as well as small incinerators in commercial establishments) and by implementing county and community managed alternative means of waste disposal. Los Angeles County Air Pollution Control District Rules and Regs. Rule 58 (1955). Hagevik, *Decision Processes in Air Quality Management* 102-06 (thesis, University of North Carolina 1969) (published by Praeger, as *Decision Making in Air Pollution Control* (1970)).

²⁰⁶ New York City Dep't of Air Resources, Bureau of Engineering, Local Law #14 Status, Public Sector (Aug. 1971). The same report stated that 20% of privately operated incinerators were upgraded or discontinued. Figures are not available on compliance by other governmental bodies.

²⁰⁷ New York City Dep't of Air Resources, Bureau of Engineering, Local Law 49 (Jan. 1972). Local Law 49 is the amended version of Local Law 14. The January report does not contain compliance statistics by the public sector; the latest available figures are as of August 1971.

²⁰⁸ New York City Dep't of Air Resources, Emission Inventory Summary (Sept. 1970). In tons per year and percentages of total pollutant emissions, incinerator emissions were as follows: sulfur dioxide—2100 (0.5%); particulates—24,340 (37%); oxides of nitrogen—2100 (0.7%); hydrocarbons—14,360 (5%); carbon monoxide—27,470 (2%). Such emissions are estimated and computed, not measured.

²⁰⁹ Suspended particulates levels are well in excess of this standard (federal primary air quality standard) in virtually all of New York City, in most of Nassau County, and in many areas of Westchester County. These levels must be reduced by approximately 40% to attain primary air quality standard. Taking background levels into account, this requires an overall reduction of about 60% in particulate emissions in the area. . . . Incineration was responsible for well over one-quarter of all particulates emitted in New York City, Nassau and Westchester Counties.

State Department of Environmental Conservation, Justification and Summary, Proposed 10 N.Y. Codes, Rules & Regs. 197 (1971).

using residual fuel oil,²¹⁰ industrial equipment emitting sulfur compounds (there are none in New York City),²¹¹ and portable construction equipment.²¹² In 1971, manufacturing and fuel burning equipment using coal were added to the list.²¹³ As of August 1971, forty-one percent of the oil burners operated by the New York City Board of Education, N.Y.C. Hospital Corporation, and the N.Y.C. Housing Authority had complied,²¹⁴ while as of January 1, 1972, about twenty-seven percent of private oil burners had complied.²¹⁵ The law has not been enforced with respect to portable construction equipment,²¹⁶ and the agency has not required licenses issued more than three years ago to be renewed.²¹⁷

New York City's limited success in obtaining compliance with its wide range of equipment licensing provisions shows that wide scale mandatory upgrading of old equipment may encounter strong and persistent resistance from private as well as governmental sectors, and may therefore, as a practical matter, be unenforceable.²¹⁸ The fact that the City itself is a principal violator of its own law has certainly contributed to the failure of the City's ambitious licensing program.²¹⁹ Additional factors include the nature of the program's upgrading requirements, which were mandatory across-the-board specifications without regard to the age or other condition of the equipment, its untimely (from the owner's viewpoint) adverse economic effect on persons and governmental bodies too numerous to coerce easily, the continued failure to provide the enforcement and other resources needed for such a program, and the initial failure to provide options (the incinerator

²¹⁰ New York City Admin. Code ch. 41, § 892-4.2 (1971), as amended, New York City Admin. Code ch. 57, § 1403.2-5.05(b)(2) (Supp. 1971).

²¹¹ New York City Admin. Code ch. 41, § 892-4.4 (1971), as amended, New York City Admin. Code ch. 57, § 1403.2-5.05(b)(3) (Supp. 1971); interview with Alfred Pieratti, former Executive Director of Engineering and Enforcement of the New York City Dep't of Air Resources, April 12, 1971.

²¹² New York City Admin. Code ch. 41, § 892-4.5 (1971), as amended, New York City Admin. Code ch. 57, § 1403.2-5.05(b)(3) (Supp. 1971).

²¹³ New York City Admin. Code ch. 57, §§ 1403.2-5.05(b)(2), (4) (Supp. 1971).

²¹⁴ New York City Dep't of Air Resources, *supra* note 206.

²¹⁵ New York City Dep't of Air Resources, *supra* note 207.

²¹⁶ Interview with Alfred Pieratti, *supra* note 211.

²¹⁷ Conversation with Herbert G. Johnson, Esq., Executive Director, New York City Environmental Control Board, January, 1972.

²¹⁸ New York City Dep't of Air Resources, *supra* notes 206, 207. The percentage of non-compliance is running from about 60% for government fuel burning equipment using residual oil to 85% for government incinerators, while the percentage of non-compliance by the private sector for both types of equipment is about 70%.

²¹⁹ This fact was mentioned one or more times during nearly every executive session of the N.Y. City Council Committee on Environmental Protection in which the Committee considered revision of New York City's Air Pollution Control Code.

discontinuance provision was added in 1968) and economic incentives (the City later helped arrange low-interest loans).²²⁰

Efforts are now being made, within the limitations of available resources, to enforce the law. Whether the upgrading of fuel burning equipment, incinerators and portable construction equipment will ever have a substantial long-term effect on air quality remains to be seen. Even if all the equipment were licensed, or, in the case of incinerators, eliminated, the problem of regularly inspecting the upgraded sources would remain. The irony is that the problem of inadequate inspectorial resources was to be solved by the 1966 upgrading legislation, which required across-the-board upgrading and a triannual license. However, a meaningful license-renewal program also requires staffing. If resources are not or cannot be made available, then sources of potentially heavy pollution such as incinerators must be eliminated wherever possible, and fuel equipment and processes that have low pollution potential—such as natural gas, redesigned engines for construction equipment, and steam for space heating—must be substituted.

B. Equipment Use and Maintenance Standards

Like emission standards, this type of legislation is designed to place on the owner responsibility for the management of the polluting fuels, materials or equipment. The burden is upon the agency to maintain sufficient field operations to encourage compliance with statutory standards and to catch violators, a burden that includes the provision of eyewitness testimony to prove violations and the presence of inspectors when operating violations—usually irregularly occurring and transitory acts or omissions—occur. The feasibility of enforcement under such conditions will depend upon the number of sources to be policed and the degree of voluntary compliance that can be expected.

Despite a century of failure in the enforcement of New York City housing maintenance laws, many of the air pollution control laws piously mandate proper maintenance and operation of equipment, much of which is located in the same housing whose maintenance the law has not affected.²²¹ Where economic or other interests of the owner strongly

²²⁰ To encourage compliance the Department of Air Resources let it be known informally that further upgradings would not be required at the time of the next license renewal. The real estate industry had protested about the difficulty of obtaining financing on a three year certificate, stating that it did not want to put in new equipment in three or even nine years. Executive Session, New York City Council Comm. on Environmental Protection, May 24, 1971.

²²¹ For examples of such mandates see, e.g., New York City Admin. Code ch. 57, §§ 1403.2-11.01, -11.03, -11.25 (Supp. 1971). For failure of maintenance laws, see Castrataro, *Housing Enforcement: A Century of Failure in New York City*, 14 N.Y.L.F. 60

induce or compel legally substandard maintenance or operation and where the inspectorial burden is so great as to be impractical, it is unrealistic to expect a high degree of compliance. A similar situation is presented in the anticipated failure of automobile owners to maintain control devices properly or even to retain the device, since a car will operate perfectly well, or better, without some of the devices. The EPA is hoping to forestall such failures by requiring installation of a device which as a practical matter is non-removable and performs adequately for 50,000 miles.²²²

Scattered throughout the federal proposed model regulations are equipment use and maintenance standards²²³ which, with the exception of the mandates affecting incinerators,²²⁴ apply to polluting industries rather than to real estate. Given the variety of industries concerned and potential situations likely to occur, it is impossible to generalize as to enforcement feasibility, except to repeat that the viability of these provisions depends upon the provision of regular spot checks.

C. Operator Licensing

Since 1966, New York City has prohibited the operation and supervision of an incinerator or of fuel burning equipment using residual fuel oil, unless the operator has a license.²²⁵ The license can be obtained by attending night class for six weeks,²²⁶ but compliance has been limited,²²⁷ principally because of insufficient number of classes, language barriers, and the fact that the equipment will often function adequately for the operator's purpose without his taking the precautions necessary for good air pollution control.²²⁸ Even if the licensing law

(1968); Grad, Final Report of the Study of Housing Maintenance and Enforcement May 18, 1964-June 30, 1967, Legislative Drafting Research Fund, Columbia University (1967).

²²² 42 U.S.C. § 1857f(1)(d)(i) (1970). Address by Prof. James Fay of M.I.T., Member, Committee on Motor Vehicle Emissions, National Academy of Sciences, Bar Association of the City of New York Meeting, February 23, 1972. See also Semi-Annual Report of the Committee, January 1, 1972.

²²³ See, e.g., 36 Fed. Reg. 6688-92 (1971). Portions were deleted in the adopted regulations. *Id.* at 22486-87.

²²⁴ *Id.* at 6688.

²²⁵ New York City Admin. Code ch. 57, § 1403.2-11.11 (Supp. 1971).

²²⁶ Interview with Alfred Pieratti, *supra* note 211.

²²⁷ *Id.* Mr. Pieratti stated "[w]ell, it's known that most operators don't have certificates. We ask for them when we check the equipment out How many? My guess is that 40,000 out of 50,000 don't have the certificate." Mr. Pieratti also stated that "since 1958 over 12,000 building superintendents and equipment operators of an estimated 30,000 total have attended the classes"—an indication of two-thirds non-compliance. *Id.* (These statistics do not indicate the effect of job turnover, nor the type of building owner complying and not complying with the law.) Finally, qualifying the conclusion that the law had limited impact, it was stated that "the Department feels that this program has had a beneficial impact, and plans to increase the number and availability of classes." Conversation with Lewis Cheffer, New York City Dep't of Air Resources, February 16, 1972.

²²⁸ Interview with Alfred Pieratti, *supra* note 211. Mr. Pieratti stated that "we issue

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were complied with, then, there would remain the insoluble problem of motivating thousands upon thousands of licensed operators and their employers so to operate and maintain equipment that the quantity of pollutants emitted will be substantially reduced, although their equipment will function without their taking such precautions. The proposed model regulations contain no comparable provision. It is concluded that operator licensing requirements have serious limitations and cannot realistically be counted on as an effective pollution control measure, unless the obstacles mentioned above are eliminated.

VI. ENFORCEMENT DEVICES AND REMEDIES

A. *Evaluation of Existing Devices and Remedies*

In the absence of total voluntary compliance, the effectiveness of an otherwise enforceable law depends on the availability of adequate legal remedies to the enforcement agency and its application of them. The purpose of remedial provisions in air pollution control is to deter future violation and thus to make future imposition of the remedy unnecessary. If remedial powers and procedures are broad, flexible, and speedy, and the penalties are not trivial, the law can and will deter the prohibited behavior. Six enforcement devices are usually available to air pollution control agencies:

- (1) issuance of administrative orders, particularly cease and desist orders;²²⁹
- (2) sealing of equipment;²³⁰
- (3) administrative hearings;²³¹
- (4) injunctions;²³²

violation notices (informal warnings) if there is no certificate, we don't issue summonses. It's usually not the guy's fault. We don't give many classes, and for those who speak Spanish, we only have one class in the Bronx."

²²⁹ See, e.g., N.J. Stat. Ann. § 26:2C-14 (Supp. 1971), which empowers the State Department of Health to issue cease and desist orders after investigating and discovering violations of environmental regulations; N.Y.E.C.L. § 19-0305(1) (McKinney 1972), stating that the Commissioner of Environmental Conservation may "[d]o such other things as he may deem necessary, proper or desirable in order that he may enforce codes, rules or regulations . . ."; Nassau County, N.Y., Admin. Code § 9-21.6(e) (1971), vesting powers in the County Board of Health; New York City Admin. Code ch. 57, §§ 1403.2-15.01 (b)(1), (2), (4), and -15.01(c), (d), (f) (Supp. 1971).

²³⁰ See, e.g., New York City Admin. Code ch. 57, §§ 1403.2-15.01(b)(3), (c)(2) (Supp. 1971); Nassau County, N.Y., Admin. Code § 9-21.34 (1971).

²³¹ See, e.g., N.J. Stat. Ann. § 26:2C-14.1 (Supp. 1971); N.Y.E.C.L. § 19-0505 (McKinney 1972); Nassau County, N.Y., Admin. Code § 9-21.6(c) (1971); New York City Admin. Code ch. 57, § 1403.2-15.13 (Supp. 1971).

²³² See, e.g., N.J. Stat. Ann. § 26:2C-19 (Supp. 1971); N.Y.E.C.L. § 71-2107 (McKinney 1972); New York City Admin. Code ch. 57, § 1403.2-15.21(a) (Supp. 1971).

- (5) penalties (civil or criminal);²³³
- (6) emergency powers.²³⁴

Statutory authority for some or all of these remedies may be available. In addition, the scope of the agency's or the court's powers vis-à-vis each remedy may vary widely. Even within a common air pollution basin, one enforcement agency may have broad, speedy, and flexible powers, while another agency may be burdened by limited powers, cumbersome procedures, and a general lack of opportunity for independent discretion. New Jersey's enforcement scheme falls within the former category; New York State's falls within the latter category; and New York City's falls somewhat closer to the circumscribed inflexibility of New York State than to New Jersey. One test in evaluating an agency's power is to ask what an agency could do, and how swiftly, should a serious violation occur which does not constitute an "imminent danger." Another test is to ask what an agency could do if the serious air pollution situation that develops is not explicitly covered by specific statutory prohibition or criteria. It should be added that, unlike the substantive provisions of the law whose effectiveness may depend on adequate funding, the effectiveness of remedial provisions depends almost entirely upon the statutory language. Ultimately, of course, both depend upon the will of the legislature.

In New York State, the power to enforce the law is vested in the New York State Commissioner of Environmental Conservation.²³⁵ Upon receipt of a written complaint, he may investigate the alleged violation.²³⁶ Generally, complaints are not initiated by the agency except in special situations and those of "imminent danger";²³⁷ the agency employs no full-time air pollution inspectors.²³⁸ If it appears to the Commissioner that there has been a violation, a notice is sent

²³³ See, e.g., N.J. Stat. Ann. § 26:2C-19 (Supp. 1971) (civil); N.Y.E.C.L. § 71-2103 (McKinney 1972) (civil); Nassau County, N.Y., Admin. Code § 9-21.78 (1971) (criminal); New York City Admin. Code ch. 57, §§ 1403.2-15.01(b)(5), (7) (Supp. 1971) (criminal).

²³⁴ See, e.g., N.J. Air Pollution Code ch. 12 (1971); N.Y.E.C.L. § 71-0301 (McKinney 1972); New York City Admin. Code ch. 57, § 1403.2-15.01(f) (Supp. 1971). For an examination of a general air pollution warning system see New York City Charter § 11.05 and Mayor's Executive Order No. 37, Environmental Protection Administration Emergency Control Board Regulations Pertaining to the Air Warning System, June 9, 1971.

²³⁵ N.Y.E.C.L. § 19-0305 (McKinney 1972).

²³⁶ N.Y.E.C.L. § 19-0503 (McKinney 1972).

²³⁷ N.Y.E.C.L. § 71-0503 (McKinney 1972); Interviews with Harry Hovey, Assoc. Dir. of Air Resources, New York Dep't of Environmental Conservation, in Albany, N.Y., March 28, 1969; Franklin Austin, Assoc. Dir. of Air Resources, New York Dep't of Environmental Conservation, in White Plains, N.Y., April 25, 1969; and Albert Machlin, Assoc. Dir. of Air Resources, New York Dep't of Environmental Conservation, New York City, February 15, 1972.

²³⁸ Interviews with Harry Hovey, Franklin Austin and Albert Machlin, *supra* note 237.

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to the respondent requiring him to attend an administrative hearing.²³⁹ If the Commissioner issues a cease and desist order after the hearing, the respondent has two available courses of action. He may request a review by the Environmental Board, and, if still dissatisfied, seek review by the courts under an Article 78 proceeding.²⁴⁰ Or he may appeal from the cease and desist order directly to the courts for review under Article 78 or a special proceeding.²⁴¹ Neither the Commissioner nor the Environmental Board has the power to impose penalties or receive financial assessments. The Attorney General must bring a separate court action for statutory penalties.²⁴² Thus enforcement procedures are prescribed in detail by the statute, leaving the agency limited power, discretion and flexibility.

In contrast, New Jersey air pollution control laws grant broad and general powers to the agency without closely prescribing the order in which the powers are to be exercised. The agency may investigate, initiate, or receive complaints, issue cease and desist orders, hold administrative hearings, institute legal proceedings to prevent air pollution (including summary injunctive relief), impose and receive penalties, and comprise and settle any claim for a penalty.²⁴³ Where the regulation does not contain a specific emission standard (e.g., a standard for odors) the statute requires that an administrative hearing precede the issuance of a cease and desist order.²⁴⁴ Otherwise, the procedure and manner in which agency powers are exercised are determined by administrative policy, and may therefore be exercised with considerable flexibility in any given situation while remaining within the confines of the statute. Agency policy—and that of the Attorney General's office, with which the agency works in close conjunction—is to conduct its proceedings with the maximum speed appropriate to the particular situation and to induce prompt corrections through the use of substantial penalties and other persuasive devices.²⁴⁵

Most enforcement proceedings in New Jersey begin with an agency inspection followed directly by the service of an *ex parte* cease and desist order.²⁴⁶ The agency employs its own inspectors, and nearly

²³⁹ N.Y.E.C.L. § 19-0505 (McKinney 1972).

²⁴⁰ N.Y.E.C.L. § 19-0511(a)(1) (McKinney 1972).

²⁴¹ N.Y.E.C.L. § 19-0511 (McKinney 1972); N.Y.C.P.L.R. § 7803 (McKinney 1971). The scope of the court's review of the administrative decision is set forth therein.

²⁴² N.Y.E.C.L. § 71-2103(2) (McKinney 1972).

²⁴³ N.J. Stat. Ann. §§ 26:2(C)-9(d), (e), -14, -14.1, -19 (Supp. 1971).

²⁴⁴ N.J. Stat. Ann. § 26:2C-14 (Supp. 1971).

²⁴⁵ Series of interviews with Richard Sullivan, State Commissioner of Environmental Protection (formerly Dir. of Div. of Clean Air and Water) Summer, 1968; interviews with Theodore A. Schwartz, Esq., former N.J. Deputy Attorney General in charge of air pollution control, July 10, 1968, July 23, 1968, and May 26, 1969.

²⁴⁶ Interviews with Theodore A. Schwartz, *supra* note 245.

all inspections are agency-initiated.²⁴⁷ If the respondent fails to comply, three modes of enforcement procedure are available.

First, should the violation be deemed serious and more or less continuous, the agency will immediately seek injunctive relief with penalties. The reason for seeking penalties in addition to an injunction is to decrease the likelihood of delays in compliance. It is assumed that an alleged violator who has already played the waiting game with respect to one or more cease and desist orders is likely to behave similarly with respect to the compliance time allowed by the court in the injunction, unless he is made to pay for his dilatory actions. A second type of enforcement procedure can be used if the violation is not serious but is more or less continuous: a cease and desist order will be issued, after which the respondent may request an administrative hearing. A second cease and desist order may then be issued before the agency will institute court proceedings. Finally, if the violation is sporadic (e.g., occasional burning at a dump, improper operation causing excess smoke), the agency may issue a notice for prosecution of penalties on the second violation after a cease and desist order for the first violation. The penalties assessed are generally about two hundred dollars which the respondent may voluntarily pay to the agency. If there is a persistent failure to pay, the Attorney General may institute summary proceedings to collect not only the original penalty but, if he deems it appropriate, maximum penalties.²⁴⁸

Until the fall of 1971, New York City's approach to its air pollution enforcement problems resembled that usually found in municipal legislation. Typical municipal enforcement techniques consist of the sealing power (an agency has the common law right to abate an activity detrimentally affecting public safety, health, or welfare), administrative orders, and criminal penalties.²⁴⁹ These were the City's only enforcement tools: if the violator broke a seal or ignored an order of the Commissioner or the Environmental Board, the agency's sole remedy was to prosecute the respondent in crowded criminal courts. If the respondent still failed to appear or to correct the violation, or repeated the violation, the agency's sole recourse was to prosecute again. Significant penalties were never imposed by the criminal courts.²⁵⁰ In sum, the

²⁴⁷ An exception is odor complaints, which are often citizen-initiated. Interviews with Herbert Wortreich, Chief Enforcement Officer, Bureau of Air Pollution Control, N.J. Dep't of Environmental Protection, Sept. 13, 1968, and Feb. 8, 1972.

²⁴⁸ Interviews with Theodore A. Schwartz, *supra* note 245.

²⁴⁹ New York City Admin. Code ch. 57, § 1403.2-15.25 (Supp. 1971).

²⁵⁰ The average fine imposed was about \$35. Interdepartmental memo from Anthony Incristo, former Admin. Ass't, Bureau of Enforcement, Environmental Board, to Joseph Schechter, former Director of Bureau of Enforcement, Mar. 4, 1971. Mr. Incristo stated, *inter alia*, that "[s]moke emission cases incline to raise the average fine due to the occa-

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City faced frustrating and expensive round-robin procedures having no significant impact on air quality.

A substantial portion of New York City's recent Air Pollution Control Code revision concerned enforcement. When the futility of criminal procedures was generally acknowledged, the City Council, in agreement with the Environmental Protection Administration, decided to retain criminal enforcement and to add administrative hearing procedures and civil penalties.²⁵¹ The agency may now pursue either civil remedies or criminal prosecutions or both. However, if the civil procedures are evaluated in terms of breadth of scope, flexibility, and speed, the new law appears to be not much stronger than the circumscribed New York State procedures.

Save for two instances described below, civil enforcement proceedings begin with an agency inspection and service of a written notice to the respondent requiring his appearance before an Environmental Control Board hearing.²⁵² If the respondent is dissatisfied with the administrative decision or order, he may appeal to the Environmental Control Board to review its own decision.²⁵³ If still dissatisfied, the respondent may then appeal to the courts. At that point, the agency's attorneys are prohibited from handling the case. Corporation Counsel is to represent the New York City Environment Protection Administration in court.²⁵⁴ Moreover, at this stage the respondent is entitled, at the discretion of the court, to a *de novo* trial of the case,²⁵⁵ and may of course pursue his case through the courts of appeal. Thus, by creating two separate and repetitious judicial systems handled by different attorneys, the law severely weakens the effectiveness of the administrative hearing, delays the agency in cases where time is of the essence, and makes it easier for the violator to avoid a cease and desist order for months or even years, depending on how much the delay is worth to the polluter.²⁵⁶

Two types of violations may be attacked by slightly more expeditious procedures. The first consists of violations for failure to obtain a license to install, alter, or operate specified equipment which may

sional high fines of \$500 for repeated (§ 9.03) offenders, while Local Law 14 (equipment upgrading) cases are usually fined \$25."

²⁵¹ New York City Admin. Code ch. 57, §§ 1403.2-15.01, -15.25 (Supp. 1971).

²⁵² New York City Admin. Code ch. 57, § 1403.2-15.05 (Supp. 1971).

²⁵³ New York City Admin. Code ch. 57, § 1403.2-15.19 (Supp. 1971).

²⁵⁴ New York City Admin. Code ch. 57, § 1403.2-15.21 (Supp. 1971).

²⁵⁵ New York City Admin. Code ch. 57, §§ 1403.2-15.19, -15.21 (Supp. 1971).

²⁵⁶ A new provision of the law, if used, should considerably facilitate enforcement and avoid further procrastination. The New York City regulation allows the Environmental Control Board to require the respondent to post a performance bond, or other security, in an amount sufficient to assure compliance with its order within the time prescribed. New York City Admin. Code ch. 57, § 1403.2-15.01(e) (Supp. 1971). A court may or may not stay the board's order. If the court decides to stay the order, it may require an appeal bond equal to the performance bond.

cause air pollution;²⁵⁷ since most persons in New York City who should have a license do not have one, it is hoped that the agency will use this provision extensively. The other category is composed of violations constituting, in the opinion of the Environmental Control Board, "an imminent peril to the public health."²⁵⁸ In these two instances, the Board may issue a cease and desist order prior to an administrative hearing.²⁵⁹ In all other respects the procedures are those used for other violations, and a respondent is entitled, at the discretion of the court, to a second trial.

B. Recommendations

In evaluating the enforcement proceedings of the two states and New York City, a number of factors become evident. First, without a full-time staff to initiate inspections and investigations, an agency's role will remain essentially passive. In addition; the time period which elapses from the time the violation is initially observed until service of notice of administrative hearing is undesirable due to the cumbersome observations, reporting and investigation procedures.

Where local enforcement agencies are relied on by the states to enforce pollution control, and a local agency's enforcement structure is ineffective, obviously no progress toward air quality will be made. If there are no local agencies, as in rural areas, the state must initiate investigations and play an active role in controlling whatever air pollution may exist. If there are strong active agencies, as in New York City and Nassau County, the state's dependence on the local agency has few negative repercussions.

Another factor to consider is whether agency power to issue a cease and desist order prior to administrative hearing saves governmental resources and time with respect to unprotested violations and provides the agency with an initial show of strength. Agency power to impose and collect penalties also saves resources that would otherwise be spent in a court action to collect penalties. The collection of penalties is expedited, and this, in turn, should induce greater compliance, since promptness in the collection of penalties is often as important as the amount of the penalty.

A third factor to note is that limiting the scope of judicial power to review administrative decisions clearly strengthens the position of the enforcing agency, decreases the number of appeals, and expedites enforcement of the law. These are advantages, of course, from an enforcement agency's viewpoint. Many environmentalists find limita-

²⁵⁷ New York City Admin. Code ch. 57, § 1403.2-15.01(c) (Supp. 1971).

²⁵⁸ New York City Admin. Code ch. 57, § 1403.2-15.01(f) (Supp. 1971).

²⁵⁹ *Id.*

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tions on judicial review less attractive, and are engaging in legislative and court battles to broaden the scope of the court's review of administrative decisions. Essentially, these environmentalists feel that they are not getting a fair shake from the agencies and that the courts will be more sympathetic. It is interesting that real estate interests and other potential polluters, applying the same reasoning, protested against giving the New York City Environmental Protection Administration Board power to hold hearings and impose penalties. Power was given, but only under the condition that the alleged polluter be entitled, at the discretion of the court, to a *de novo* trial.²⁶⁰

A final point to consider is that the handling of agency violations by a single set of attorneys rather than by two separate agencies, as is now done by New York City and New York State, significantly expedites proceedings and prevents any weakening of the government's case that may arise because of unfamiliarity of attorneys or a varying degree of commitment.

On the whole, the inherent weaknesses in the enforcement procedures and devices of these statutes are the result of deliberate legislative choice. New York State, for example, is committed to a policy of decentralized air-pollution control. This policy is not entirely inconsistent with a strong state-wide pollution control program, so long as local agencies are well-funded and have ample power to control community emission sources. Even then, however, it must be recognized that a local agency generally lacks the political influence to control large polluters. Hence state support must still be relied on, and the usefulness of that support will depend upon whether or not the state agency possesses ample powers and may use them expeditiously. New York State lacks such powers. New Jersey, on the other hand, is committed to a heavily centralized air pollution control effort, which is said to be amply funded and politically supported.²⁶¹ Finally, the weaknesses in New York City's air pollution control code have been ascribed to a combination of deliberate legislative choice and administrative problems, arising from political pressure and an internecine power struggle between the Environmental Protection Administration and Corporation Counsel.²⁶²

VII. CIVIL AND CRIMINAL PENALTIES

The purpose of imposing penalties for air pollution is to deter violations and thus to make the imposition of the penalty unnecessary.²⁶³

²⁶⁰ Executive Session, N.Y. City Council, Committee on Environmental Protection, May 14, 1971.

²⁶¹ Interviews with Richard Sullivan and Theodore A. Schwartz, *supra* note 245.

²⁶² *Id.*

²⁶³ In air pollution control regulation, the philosophy that the sole purpose of the

For penalties to be effective deterrents, two basic conditions must be satisfied: the amount of the penalty should be meaningful—it can be neither trivial nor outrageous²⁶⁴—and the procedures preceding the imposition of the penalty should be speedy without abusing respondent's procedural rights.

In examining and evaluating penalty provisions, a number of guidelines may be used. One such guideline is the minimum fine. The minimum fine is at least as important as the maximum in determining whether the amount of the fine is meaningful, because the minimum fine is generally imposed far more frequently than any other fine.²⁶⁵ The minimum amount cannot be trivial, and the maximum must be sufficiently substantial to be significant to most business organizations. For major companies, the only financially significant fine is probably one that exceeds the cost of compliance, and that amount may be outrageously excessive to other violators.²⁶⁶ In dealing with the major company, then, other techniques, such as publicizing the violation, may be the most effective enforcement tool.²⁶⁷ A relatively unblemished community or national image is generally a highly valued intangible asset.

The method by which a fine is assessed is another important consideration. A per diem fine is more desirable than a fine per offense because most air pollution emissions are more or less repetitive and cumulative assaults on the environment, rather than single acts. If the emission is sporadic, a per diem fine is as fair as a per offense fine. The advantage of a per diem penalty is that continuing violators incur severe penalties through accumulation even though the basic per diem penalty is not unreasonably large.

fine is to eliminate violations (not to punish violators or to collect revenue) is embodied in provisions authorizing the agency to compromise and settle a penalty, including a rebate of the penalty. See, e.g., N.J. Stat. Ann. § 26:2C-19 (Supp. 1971). For an interesting study of penalties see Schwartz & Orleans, On Legal Sanctions, 34 U. Chi. L. Rev. 274 (1967).

²⁶⁴ Commentators, in discussing the effectiveness of legal penalties, have stated:

Historical materials, case studies, and experimental evidence raise serious doubts about the proposition that sanction effectiveness is a linearly increasing function of severity of prescribed punishment. For one thing, when the threat of severe punishment is extended to a variety of offenses which are not considered serious hazards to community welfare, the penalties are unlikely to be enforced.

Schwartz & Orleans, *supra* note 263, at 277.

²⁶⁵ This statement is based on New York City experiences. The bulk of pollution violations consist of the same routine infractions and rather automatically receive whatever may be the statutory minimum fine.

²⁶⁶ To some extent, this problem may be handled legislatively by classifying violators with respect to penalties in a rational, non-discriminatory fashion. See, e.g., New York City Admin. Code ch. 57, § 1403.2-15.25 (Supp. 1971), which distinguishes between "a person, other than a corporation" and "a corporation," and imposes heavier fines on the latter. A caveat to such provisions is that they may raise constitutional issues.

²⁶⁷ Interview with Theodore A. Schwartz, *supra* note 245.

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A significant factor to consider in any penalty provision is whether the fine commences from the first day of the violation, as in New York City,²⁶⁸ or from the date on which the violation was to have been eliminated in accordance with a cease and desist order, as in New York State²⁶⁹ and New Jersey.²⁷⁰ Cease and desist orders generally give the violator ample time in which to correct the violation, and therefore the amount of the fine may be significantly less if it runs from the date the violation was to have been eliminated.²⁷¹ The amount of the fine is also affected by the procedures required before the cease and desist order may issue. In New York State the procedures appear to be cumbersome and slow: the order can be issued only after an administrative hearing, which generally takes place following a written complaint and local investigation. Even if all is done speedily, considerable time elapses. New Jersey procedure is less cumbersome; the cease and desist order may be issued at the time of the initial agency inspection.²⁷² In New York City there is no provision specifying the time at which the penalty commences; the penalty is for each day the violation continues, and therefore can be quite substantial if the agency so chooses.²⁷³

Another factor to be considered in evaluating statutory penalty provisions for clean air violations is the increase, if any, that the fine undergoes with successive violations.²⁷⁴ Although it may appear more equitable for the amount of the fine to increase per offense, in actual operation it is more effective to impose a statutory minimum-maximum penalty, per day or per violation. A reasonable fine can then be determined under all of the circumstances without deciding the legal technicalities of whether the same defendant repeatedly committed each offense in question. In New York City, for example, it is the practice of violators before the criminal court to juggle defendants in order to avoid increasing penalties.²⁷⁵ An individual equipment operator may be the defendant, or the individual plant manager, or the corporation. The practice is tolerated by the courts and Corporation Counsel. For

²⁶⁸ New York City Admin. Code ch. 57, § 1403.2-15.01(b)(5) (Supp. 1971).

²⁶⁹ N.Y.E.C.L. § 71-2103(1) (McKinney 1972).

²⁷⁰ N.J. Stat. Ann. § 26:2C-19 (Supp. 1971).

²⁷¹ In the case of an ongoing daily violation, such as failure to obtain a license or an equipment violation, the agency may fine the violator for a limited time period, decided on by the agency, rather than for the full period of the violation. Regardless of the statutory language, then, the fine may be considerably less than would appear solely from an analysis of the legislative provision.

²⁷² N.J. Stat. Ann. § 26:2C-19 (Supp. 1971).

²⁷³ New York City Admin. Code ch. 57, § 1403.2-15.01(b)(5) (Supp. 1971).

²⁷⁴ See, e.g., New York City Admin. Code ch. 57, § 1403.2-15.25(g) (Supp. 1971).

²⁷⁵ E. Schachter, New York City Air Pollution Enforcement 78-98, July, 1971 (unpublished paper for the Ford Foundation).

about fifteen years now, Con Edison has used this "legal" device to receive hundreds of inexpensive first and second offense penalties.²⁷⁶

It appears that jail penalties have never been imposed for an air pollution violation in this country,²⁷⁷ probably because jail is considered much too severe a penalty for a white-collar business crime, although it would appear that the threat of jail is sometimes useful in obtaining compliance. Considering the poor compliance record of the City's polluters, however, reliance on the threat of jail as a meaningful deterrent appears questionable. If a jurisdiction's procedures are exclusively criminal and the courts are extremely crowded, as is common in large or growing urban areas, it is likely that a long lapse will ensue between the time of the offense and the imposition of the penalty.

If the procedures are exclusively civil, as in New York and New Jersey,²⁷⁸ or mixed civil and criminal, as in New York City,²⁷⁹ it is important to note whether the enforcing agency has the power to im-

²⁷⁶ The following table, prepared by the author, demonstrates this point:

CON EDISON COURT CASES 1963-1970						
	Summonses Served	Convic- tions	Withdrawn by the City	Dismissed by the City	Pending Adjust- ments	Fines Collected
1963	5	5	—	—	—	\$ 125
1964	7	7	—	—	—	275
1965	16	15	1	—	—	1,175
1966	15	5	2	8	—	800
1967	24	13	3	8	—	1,575
1968	12	1	3	8	—	250
1969	61	10	5	11	35	425
1970	197	6	8	31	152	210
Totals	337	62	22	66	187	\$4,835
Average fine per conviction						\$78.00
CON EDISON COURT CASES 1971						
1971	22	—	9	—	13	\$25 (in a carry- over 1969 case)

²⁷⁷ In late 1971, under the Refuse Act of 1899, several criminal indictments and threats of imprisonment were brought against owners and executives of companies polluting the water. These included the owners of J.J. O'Donnell Woolers Co. of Grafton, Mass., and Bettinger Corp. of Milford, Mass., and a manager of U.S. Steel's South Works of Chicago. N.Y. Times, Nov. 5, 1971, at 24, col. 1; id., Nov. 14, 1971, § 6, at 4, col. 2.

²⁷⁸ See, e.g., N.J. Stat. Ann. § 26:2C-19 (Supp. 1971); N.Y.E.C.L. § 71-2103 (McKinney 1972).

²⁷⁹ See, e.g., New York City Admin. Code ch. 57, §§ 1403.2-15.01; -15.25 (Supp. 1971).

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pose and collect penalties.²⁸⁰ If it does not, as in New York State,²⁸¹ court procedures, necessarily slow, will be required, and accordingly far fewer penalties will be collected.

A few penalty provisions in the New York City Code are worth noting. There is a substantial fine for falsification of applications or reports.²⁸² If enforced, this fine should facilitate the use of the licensing system as an effective enforcement tool. Double fines with a maximum amount are provided for failure to pay the civil penalty to court, a clearly useful principle.²⁸³ However, the present maximum of \$2,000 in the case of corporations can hardly be a deterrent to a substantial business.

Statutes now often provide that an enforcing agency may remit all or part of a penalty if the respondent promptly corrects the violation.²⁸⁴ Such a provision is most welcome because it induces compliance in a positive manner, is fair to the violator who wishes to be law-abiding, and acknowledges that the primary purpose of the law is correction of the violation rather than punishment of the violator.

Recent New York City legislation authorizing citizen suits and complaint procedures incorporates a bounty provision. Under specified circumstances, an informer who provides information or evidence leading to the imposition of a civil penalty may be awarded a percentage of the fine collected by the agency.²⁸⁵ In addition, the law provides that twenty-five percent of any criminal fine may be paid to "the person or persons giving information which shall lead to conviction."²⁸⁶ The latter provision is modeled on section 411 of the Refuse Act of 1899,²⁸⁷ under which at least two bounties have been awarded in the New York metropolitan area.²⁸⁸

CONCLUSION

A legislative draftsman's approach to any new regulatory area such as air pollution must of necessity be eclectic and experimental. The guidelines provided by the EPA to assist state and local governments to comply with the 1970 Amendments to the Clean Air Act state

²⁸⁰ See, e.g., N.J. Stat. Ann. 26:2C-19 (Supp. 1971); New York City Admin. Code ch. 57, § 1403.2-15.01(b)(5)-(7) (Supp. 1971).

²⁸¹ See, e.g., N.Y.E.C.L. § 71-2103(3) (McKinney 1972).

²⁸² New York City Admin. Code ch. 57, § 1403.2-15.25(a) (Supp. 1971).

²⁸³ New York City Admin. Code ch. 57, § 1403.2-15.25(f) (Supp. 1971).

²⁸⁴ See, e.g., N.J. Stat. Ann. § 26:2C-19 (Supp. 1971); New York City Admin. Code ch. 57, § 1403.2-15.01(b)(5) (Supp. 1971).

²⁸⁵ New York City Admin. Code ch. 57, §§ 1403.2-15.09(d), (e) (Supp. 1971).

²⁸⁶ New York City Admin. Code ch. 57, § 1403.2-15.25(h) (Supp. 1971).

²⁸⁷ 33 U.S.C. §§ 401, 403-04, 406-09, 411-15 (1970).

²⁸⁸ *United States v. Transit-Mix Concrete Corp.*, Crim. No. 70-844 (S.D.N.Y. 1970). See also *United States v. Ciba-Geigy Corp.*, Crim. No. 71-163 (S.D.N.Y. 1971); Druley, *The Refuse Act of 1899*, BNA Env. Rep. Monographs, No. 11, at 8-9 (Jan. 28, 1972).

broad and desirable goals but lack the concreteness and specificity necessary to attain these goals. Environmentalists, legislators and draftsmen seeking to improve air quality must look for guidance elsewhere. With the nationwide proliferation of state and local air pollution control legislation required by the Clean Air Amendments, it is important to understand the limitations of commonly used regulatory techniques and the reasons why particular ones have succeeded, while others have failed to reduce or control air pollution. Such knowledge is crucial in evaluating the probable success of newer regulatory techniques.

Much can be learned from the legislative and enforcement experiences of state and local governments within the New York-New Jersey metropolitan area. The many failures within this geographical area have been caused, principally, by a lack of funds and failure to gauge the enforcement feasibility of specific legislation in regulating particular types and numbers of polluters. The successes appear primarily where outright banning of polluting materials and activities has been utilized. Banning is an extreme but sometimes necessary measure requiring considerable political courage and planning. Although it is not practical to ban the purchase, sale and use of fuels, equipment, processes and materials, draftsmen should maximize the use of this regulatory technique, especially in situations where other measures have been tried but have failed to decrease air pollution significantly. It is hoped that some of the lessons learned in the New York-New Jersey area will not be lost on legislators and draftsmen seeking to improve air quality within that region and in other areas of the country.

The catchword for the draftsman of environmental legislation is "effectiveness." The ineffectiveness of present air pollution legislation is evident from the continued befoulment of ambient air, particularly in metropolitan areas like the New York-New Jersey basin. The Clean Air Amendments have fostered and will continue to spur a large amount of statutory and regulatory verbiage aimed at improving air quality. However, legislators have apparently failed to realize that environmental legislation without impact is worse than none at all, since it creates among citizens a feeling that something is being done and so dulls their sense of urgency and leads to a cessation of efforts to improve air quality in deed as well as word. The sensitivity of draftsmen and legislators to the need for effective regulations and laws will be the ultimate determinant of the quality of the air we breathe. A careful study of prior experiences, such as the one that the foregoing analysis has attempted to provide, is a necessary preliminary to effective legislative action in air pollution control.